ORDER NO. FTD980405404

Service Manual

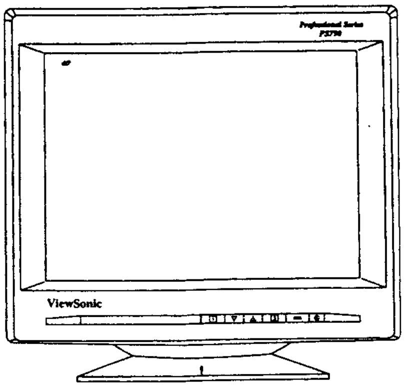
PS790 *Color Monitor*

MODEL: VCDTS21420-1M/1E

(TX-D9S54V-M/-E)

Chassis No. HV10H

Chassis Family No.19VS002



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ViewSonic

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1 CAUTION:

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

3 FIRE & SHOCK HAZARD

3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.

3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.

3-3 All the protective devices must be reinstalled per original design.

3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

4 LEAKAGE CURRENT COLD CHECK

4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.

4-2 Turn the CRT display power switch "on" .

4-3 Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be 1.8 megohm minimum.

5 LEAKAGE CURRENT HOT CHECK

5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

5-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15μF capacitor between each exposed metallic part and a good earth ground (as shown in Fig.1).

5-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15μF capacitor.

5-4 Move the resistor connection to each exposed metallic part and measure the voltage.

5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

5-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.

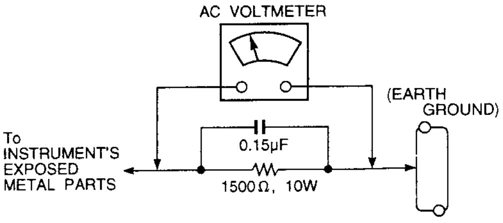


Fig.1

6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only Panasonic replacement picture tubes.

7 X-RADIATION

WARNING : The only potential source of X-Radiation is the picture tube. However when the high voltage circuitry is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

Note: It is important to use an accurate periodically calibrated high voltage meter.

7-1 The procedure for adjustment high voltage is as shown on page 23.

7-2 If can not be adjust 25.0 kV at immediate service is required to prevent the possibility of premature component failure.

7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol ⚠ on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacture's specified parts to prevent X-RADIATION, shock, fire or other hazards. Do not modify the original design or this will void the original parts and labor guarantee.

SPECIFICATION

1.0 SCOPE

1.1 Introduction

Product Configuration	This specification defines the configuration and performance requirements for the following monitors:
North America	Model Name **PS790** Model Number **VCDTS21420-1M**
Europe	Model Name **PS790** Model Number **VCDTS21420-1E**
Australia	Model Name **PS790** Model Number **VCDTS21420-1A**

1.2 Product Definitio

Top Level Assembly	The top level assembly shall contain the Monitor, Tilt/Swivel base, Power Cable, Video Cable, User's Guide, Warranty Card and Win95 INF Diskette / CDRom.

1.3 Magnetic Requirements

VCDTS21420-1M (North America)	**B_h = +/-250 mG, B_v = +450 mG** **BH= +/-180 mG, BV= +400 mG** (OK for first 30days of production if needed.)
VCDTS21420-1E(Europe)	**B_h = +/-250 mG, B_v = +450 mG** **BH= +/-180 mG, BV= +400 mG** (OK for first 30days of production if needed.)
VCDTS21420-1A(Australia)	**B_h = +/- 270 mG, B_v = -570 mG**

1.4 Mass Production Release

Mass Production Approval	Mass Production shall not begin until ViewSonic has issued a Mass Production Release.
Component Approvals	All exterior plastic components, screen printed components, labels, shipping cartons, protective foam, and printed materials require approval by ViewSonic prior to Mass Production Release.

1.5 Change Control

Engineering Change Orders	All Engineering changes to the product shall be approved in writing by ViewSonic.

1.6 Service

Documentation	(Bills of Material, Schematics, and Assembly Drawings shall be provided in printed and Electronic Format.)
Service Manual	(A Service Manual shall be provided in printed and Electronic Format.)

2.0 GENERAL REQUIREMENTS

2.1 General Specifications

Test Procedures	Monitor performance shall be evaluated by ViewSonic with the equipment and procedures specified in the ViewSonic Test & Measurement Specification "VSCTMTSPEC001".
Warm Up	Video performance shall be measured after a warm up period of **30** minutes.
Vertical Magnetic Field	The Vertical Magnetic Field specified in paragraph 1.3 shall be used for all video evaluation.
Horizontal Magnetic Field	**0mG** shall be used for all video evaluation unless otherwise specified.
Test Resolution & Frequency	Factory Presets.
Test Image Size	Factory Default.
Contrast and Brightness Controls	Factory Default.

3.0 VIDEO INTERFACE

Video Connections	**DB-15** **BNC x 5**
Default Input Connector	**DB-15**
Video Cable Length	**1.83** meters
Video Cable Color	Light Gray
Video Cable Strain Relief	10kg for one minute.
Video Cable Connector DB-15 Pinout	Compliant with IBM 8513 and VESA DDC 1/2B.
Video Cable BNC Connectors	Red, Green (Sync on Green), Blue, Horizontal Sync, and Vertical Sync.
Video Signals	**700 mV** full scale, **1,000 mV** full scale
Video Impedance	**75** Ohms
Maximum PC Video Signal	**950** mV with no damage to monitor (with 0.7V setting)
Maximum Mac Video Signal	**1250** mV with no damage to monitor (with 1.0V setting)
Sync Signals	TTL Compliant + CMOS Gate
DDC 1/2B	Compliant with Revision 2.1.
Sync Compatibility	Separate Sync, Sync on Green, Composite Sync.
Video Compatibility	The monitor shall be compatible with all PC type computers, MacIntosh computers, and after TBD market video cards.

4.0 POWER

4.1 Power Supply

Input Voltage Range	**90 to 264 VAC**
Input Frequency Range	**50 +/-3 Hz, 60 +/- 3 Hz**
Fuse	Internal and not user replaceable
Power Dissipation - typical	**140W**
Power Dissipation - maximum	**165W**
Power Supply Inrush	**< 40 amperes for ½ cycle**
Power Supply Cold Start	The power supply shall start and function properly when under full load, with all combinations of input voltage, input frequency, operating temperature and a cold CRT filament.
Power Supply Transient Immunity	The monitor shall be able to withstand an ANSI/IEEE C62.41-1980 6000V 200 ampere ring wave transient test with no damage.
Power Supply Line Surge Immunity	The monitor shall be able to withstand 1.5 times nominal line voltage for one cycle with no damage.
Power Supply Missing Cycle Immunity	The monitor shall function properly, without reset or visible screen artifacts, when ½ cycle of AC power is randomly missing
Power Supply Degauss	The monitor shall degauss when powered on with enough interval for cooling down.
Power Supply Acoustics	Based on DVT Sample S/N MC7630001

4.2 Power Interface

Monitor Connector	IEC-320 (10 ampere) type male power receptacle.
Power Cable Length	**1.8 meter (typ)**
Power Cable Color	**Gray**
"-M" Model	3-prong NEMA 5-15P type plug
"-E" Model, "-A" Model	Mates with the IEC-320 type female power connector on the computer's power supply.

4.3 Power Saving Operation

Method	VESA DPMS Signaling
Power Consumption	**ON Mode < 165 Watts** **STAND BY < 15 Watts** **SUSPEND < 15 Watts** **OFF < 4 Watts**
Recovery Time	**ON Mode = N/A** **STAND BY < 4 sec** **SUSPEND < 4 sec** **OFF < 20 sec**

5.0 FRONT PANEL CONTROLS AND INDICATORS

5.1 Front Panel Hardware Controls

Power Switch	Mechanical
Power LED	Green - ON Orange - DPMS Standby Orange - DPMS Suspend Orange - DPMS Off

5.2 Video Controls

Control Type	Digital with OSD.
OSD Controls	Contrast
	Brightness
	Horizontal Size
	Horizontal Position
	Vertical Size
	Vertical Position
	Vertical Pincushion
	Vertical Pincushion Balance
	Trapezoid
	Parallelogram
	H. Moire
	V. Moire
	Rotation (Tilt)
	Degauss
	ViewMeter
	Memory Recall
	Language {German, French, English, Italian, Spanish }
	Input Select
	ViewMatch Color
	Input Level Select
	The OSD shall save new settings when it is turned off the by the user or when it times out. There shall not be a separate save.

6.0 ELECTRICAL REQUIREMENTS

6.1 Horizontal / Vertical Frequency

Horizontal Scan Range	30Hz ~ 95kHz
Vertical Refresh Rate	50Hz ~ 180 Hz.
Sync Polarity	Independent of sync polarity.

6.2 Alignment Mode

Primary Preset. Mode 1	**VESA 1280 x 1024 @ 75Hz (4:3)**

6.3 Other Factory Presets

Mode 2	VGA 640 x 480 @ 60 Hz
Mode 3	VESA 640 x 480 @ 75 Hz
Mode 4	VESA 800 x 600 @ 75 Hz
Mode 5	MAC 832 x 624 @ 75 Hz
Mode 6	VESA 1600 x 1200 @ 75Hz
Mode 7	MAC 1152 x 870 @ 75 Hz
Mode 8	VESA 1024 x 768 @ 75 Hz

6.4 User Presets

Number of User Presets Available	**13**

6.5 Changing Modes

Maximum Mode Change Time	< **3** Sec (typ)
Mode Change Image	The image shall blank while the monitor changes modes.

7.0 CATHODE RAY TUBE

7.1 Cathode Ray Tube

CRT	Matsushita Electronics Corporation M46LNS180X ***ViewSonic must approve, in writing, any change of CRT before implementation.***
Size	**19" (18.0" Viewable Screen Area)**
Diagonal	**457mm**
Mask Type	**Invar Shadow Mask**
Pitch	**0.25mm**
Faceplate Treatment	**Advanced AGRAS Coating**
Transmission Percentage	**46%**
Implosion Protection	Tension-Band with Mounting Lugs 19-04 type meeting the requirements of UL-1418 and IEC-65.

8.0 IMAGE PERFORMANCE

8.1 Factory Defaults

Preset Color	**9300 °K + 8MPCD**
Contrast Control	Maximum
Brightness Control	Raster Just Extinguished (Center, 50 with OSD Indicator)

8.2 Display Size

Horizontal Display Size, Primary Preset	**352** mm +/- **5**mm, expandable to full scan
Horizontal Display Size, Other Presets	**352** mm +/- **7** mm, expandable to full scan
Vertical Display Size, Primary Preset	**264** mm +/- **5** mm, expandable to full scan
Vertical Display Size, Other Presets	**264** mm +/- **7** mm, expandable to full scan
Display Size Adjustment	All preset modes shall be capable of expanding to full screen size via OSD.

8.3 Display Centering Requirements

Horizontal, Primary Preset	**4** mm, correctable to zero
Horizontal, Other Presets	**7** mm, correctable to zero
Vertical, Primary Preset	**4** mm, correctable to zero
Vertical, Other Presets	**7** mm, correctable to zero

8.4 Raster Linearity

Linearity Equation	$\frac{Hi - Low}{Hi + Low} \times 100\% \leq XX\%$ 16(H) x12(V)Grid
Horizontal, Worst Case	**6** %; Fh>=60khz **7** %; Fh>=60khz
Vertical, Worst Case	**5** %

8.5 Trapezoid Distortion

Horizontal, |AB - CD|	Specified as total geometry box in paragraph 8.10
Vertical, |AC - BD|	Specified as total geometry box in paragraph 8.10

8.6 Parallelogram Distortion

|AD - BC|	Specified as total geometry box in paragraph 8.10

8.7 Line Straightness Requirements

Line Straightness	No visible hooks or S-curve distortion.

8.8 Jitter

Jitter	**0.1** mm or Invisible at a distance of **60**cm from CRT Surface.

8.9 Tilt / Rotation

Vertical Field, Paragraph 1.3. Zero, North, South, East, & West Horizontal Field, Paragraph 1.3	**2.5** mm, adjustable to zero

8.10 2 mm Box (Total Geometric Error)

Top	**2.2 mm**
Bottom	**2.2 mm**
Left	**2.2 mm**
Right	**2.2 mm**

8.11 Focus / Crosshatch Moire

Focus	Focus shall be clear, crisp, and sharp over the entire surface of the CRT.
Crosshatch Moire	Crosshatch Moire and focus shall be controlled to give consistent moire performance from unit to unit.

8.12 Convergence

A Zone	**0.30 mm**
B Zone	**0.40 mm**

8.13 Image Regulation

Static with Luminance	**2.0 mm**
Dynamic with Luminance	**2.0 mm**
Temperature	**1% of line length**
Line Voltage	**0.5% of line length**

8.14 Preset Color Temperatures

9300K+8M.P.C.D.	**x = 0.283 +/- 0.020, y = 0.298 +/- 0.020**
7500K	**x = 0.300 (Typ), y = 0.315 (Typ)**
6500K	**x = 0.313 (Typ), y = 0.329 (Typ)**
5000K	**x = 0.346 (Typ), y = 0.359 (Typ)**

8.16 CRT Color Uniformity

1931 CIE "x" worst case variation	$\lvert x_{center} - x_{worst} \rvert < 0.015$
1931 CIE "y" worst case variation	$\lvert y_{center} - y_{worst} \rvert < 0.015$

8.17 Video Amplifier Linearity, Input Step

1931 CIE "x" 600 mv to 700 mv change	$\lvert x_{600\,mv} - x_{700\,mv} \rvert < 0.010$
1931 CIE "y" 600 mv to 700 mv change	$\lvert y_{600\,mv} - y_{700\,mv} \rvert < 0.010$

8.18 Video Amplifier Linearity, Input Voltage or Controst Control

1931 CIE "x" change with input voltage or contrast control.	$\lvert x_{25.75\,Ft\text{-}L} - x_{10\,Ft\text{-}L} \rvert < 0.010$ $\lvert x_{25.75\,Ft\text{-}L} - x_{30\,Ft\text{-}L} \rvert < 0.010$
1931 CIE "y" change with input voltage or contrast control.	$\lvert y_{25.75\,Ft\text{-}L} - y_{10\,Ft\text{-}L} \rvert < 0.010$ $\lvert y_{25.75\,Ft\text{-}L} - y_{30\,Ft\text{-}L} \rvert < 0.010$

8.19 Purity

Vertical Field, Paragraph 1.3. Zero, North, South, East, & West Horizontal Field, Paragraph 1.3	No visible impingement Full scan flat Red, Green & Blue fields. Uniform full scan flat white field.

8.20 Luminance Level

Luminance Level (Primary Preset and 9300 °K + 8 only)	**30 Ft-L +/- 2Ft L with Cont = max. and Br = Center with 100% White field.**
Luminance Level (Primary Preset and 9300 °K + 8 only)	**35 Ft-L (Typ) with Cont = max. and Br = Center with 5% White Window**
Luminance Level (Primary Preset and 9300 °K + 8 only)	**5 Ft-L (Max) with Cont = max. and Br = Center with 100% White Field.**
Luminance Level (Primary Preset and 9300 °K + 8 only)	**Blank raster with Contrast at maximum, Brightness at just extinguished, and no active video.**

8.21 Luminance Uniformity

Luminance Uniformity (Primary Preset)	**>70%**

8.22 Front of Screen Bandwidth

Primary Preset	**15 dB**

8.23 Video Cards

Optimized Video Performance	Matrox Millenium
Acceptable Video Performance	ATI, Diamond Stealth Series

8.24 Raster Artifacts

Video Artifacts	No Visible Peaking, Ringing, Streaking, Sag, or Smearing Artifacts when driven by the optimized video cards in any video mode within the horizontal or vertical frequency range of the monitor
Video Skew	No Visible Complimentary Color Transition Artifacts in any video mode within the horizontal or vertical frequency range of the monitor.
Deflection, Power Supply, and Grounding Artifacts	No visible artifacts in any specified video mode within the horizontal or vertical frequency range of the monitor

9.0 SCREEN DEFECTS

9.1 Missing Pixels

Refer to CRT Specification.

10.0 MECHANICAL

10.1 Bezel Opening

Diagonal Bezel Opening	**459.2** mm

10.2 Dimensions

Width	**448** mm
Height	**454** mm
Depth	**415** mm
Base Size	**255** mm Diameter, Round Base
Monitor Weight	**21.5** kg (typ)

10.3 Tilt / Swivel

Up	**13** degrees
Down	**4** degrees
Right	**90** degrees
Left	**90** degrees

10.4 Cabinet Material

Cabinet Plastic Material	PC + ABS, GE, MC5001HF (PC+PET,KANEKA JP-50000P is OK after VS rapproval)
External Plastic Cabinet Components	All external cabinet components (bezel, rear cabinet, and tilt/swivel base) shall be made of the same material and the same color.
Internal Plastic Cabinet Components	All internal plastic cabinet components shall be in compliance with the requirements of TCO95.
Cabinet Color	The cabinet color shall conform to the ViewSonic standard.
Cabinet Component's Color Tolerance	0.5 "Delta E", L*a*b 1976 CIE Colorspace
Cabinet Color Drift Due To UV-Light	3.0 "Delta E", L*a*b 1976 CIE colorspace. Testing to be performed according to the requirements of ASTM Test Method 4674-89
Cabinet Texture	The cabinet texture shall conform to the ViewSonic standard.
Samples	The vendor shall submit textured color chips and plastic material specifications for approval.
Screen Printed Parts	Artwork shall be provided by ViewSonic. The ViewSonic Bezel Graphics Specification, VSCBGRSPEC001 controls logo position..
Bird Logo	The ViewSonic Bird Logo Plate Specification, VSCBLPSPEC001 controls bird logo position.
Molded Plastic	Workmanship shall be inspected according to the ViewSonic Molded Plastic Parts Specification, VSCMPPSPEC001.

11.0 ENVIRONMENTAL

11.1 Environmental Conditions

Operating Temperature	5°C to +35°C
Storage Temperature	-20°C to +60°C
Operating Relative Humidity	5% to 90% Non-Condensing
Storage Relative Humidity	5% to 90% Non-Condensing
Operating Altitude	-400 meters to +3000 meters
Storage Altitude	-400 meters to +12,000 meters

12.0 PACKAGING

12.1 Package Specifications

ViewSonic Packaging Specification	Compliant with v1.2 of the ViewSonic Packaging Specification.
Ink	The ink shall not rub off after a suitable drying time.
Shipping Carton Type	One Piece Construction
Shipping Carton Handholds	Two Handholds
Width	**565** mm
Height	**561** mm
Depth	**535** mm
Gross Weight	**25.0** kg
Pallet Specification	Packaged units shall be palletized, if required, in accordance with the ViewSonic Pallet Specification, VSCPALSPEC001.
40' Container Loading - Palletized	> **264** units

12.2 Vibration

Vibration Frequency	5 - 250Hz
Acceleration	1.0 G
Sweep Time	1 oct. / min
Test Time	60 min per axis
Vibration Test Data	Vibration Test Data shall be submitted for approval to ViewSonic before Mass Production.

12.3 Drop

Weak Corner	50.8 cm.
Six Faces	50.8 cm.
3 Edges Radiating From Weak Corner	50.8 cm.
Drop Test Data	Drop Test Data shall be submitted for approval to ViewSonic before Mass Production.

13.0 MANUALS AND DOCUMENTATION

13.1 Inserted Materials

User's Guide, Rear Label, and all other Inserted Material Samples	Production samples of the User's Guide, Rear Label and all other Inserted Materials will be provided to ViewSonic for approval before Mass Production.

14.0 REGULATORY AND SAFETY:

14.1 North America

Regulatory Filing	Regulatory filing should be made under the "**VCDTS21420-XY**" Model Number. All Regulatory filings should be filed so that only "ViewSonic" name is contained on the certificate and accompanying reports. The factory name shall not appear unless unavoidable due to regulatory procedure.
** NOTE: Unless otherwise specified, the 'C-UL' mark cannot be substituted for the CSA + UL combination of regulatory	UL1950 DHHS Part 21, Subpart J FCC, Part 15, Subpart J, Subpart B CSA 22.2 No. 950-M1989 DOC, ICES-003, Class B

14.2 International

	EN 60950 and GS Mark MPRII, TCO 95 PTB X-RAY NEMKO, DEMKO, SEMKO, SETI CE CB Report BCIQ VCCI C-Tick CCIB (Applied by VSI) S-Mark (Applied by VSI)

14.4 Power Management

Power Management	Energy 2000

15.0 VIDEO COMMUNICATIONS

15.1 EDID Vendor Name

EDID VENDOR NAME	VSC: Byte 8 - 5Ah, Byte 9 - 63h.

15.2 EDID PRODUCT ID

EDID PRODUCT ID	The shall be encoded as an ASCII representation of the first two digits of the North American serial number. Byte 10 - **4d**h, Byte 11 - **43**h

15.3 EDID Established Timing

EDID ESTABLISHED TIMING	Shall match with all modes the monitor is 'compatible' with as per Microsoft Guidelines.

15.4 Approvals

EDID Data File Contents	File contents shall be approved by ViewSonic prior to Mass Production Release

16.0 CODING ASSIGNMENT

16.1 Product Name and Model Number

Product Name	ViewSonic **PS790**
North America Europe Autralia	Model Number: **VCDTS21420-1M** Model Number: **VCDTS21420-1E** Model Number: **VCDTS21420-1A**

16.2 Serial Number Format

Format	PPYWWnnnnn where PP = Regional Product ID Code Y = Last digit of manufacturing year WW = Manufacturing week nnnnn = Production sequence number (Assigned by factory)

16.3 Regional Product ID Code

North America	ID Code: **MC**
Europe	ID Code: **NC**
Australia	ID Code: **PC**

16.4 UPC Coding

North America	UPC Code: **766907 13121 5**
Europe	UPC Code: **766907 14121 4**
Australia	UPC Code: **766907 15121 3**

16.5 FCC ID Code

FCC ID	**GSS19003**

16.6 EDID data

Extended Display Identification Data (EDID)

ViewSonic PS790

EDID S/N Match with Physical S/N

	ID Manufacturer Name ID Product Code ID Serial Number Week of Manufacture Year of Manufacture EDID Version.Revision	**VSC** **0x4d, 0x43** [**MC**YWWnnnnn] [As Defined] [As Defined] Ver 1.1
SIGNAL	Input Level	Analog ☒ 0.700V / 0.300V ☐ 0.714V / 0.286V ☐ 1.000V / 0.400V
	Setup	☐ YES ☒ NO
	Inputs	☒Separate Sync ☒Composite Sync ☒Sync on Green
	Serration of V	☒ YES ☐ NO
	Max. H. Image Size	36 cm
	Max V. Image Size	27 cm
	Gamma	2.81
	DPMS	☒ Stand-By ☒ Suspend ☒ Off
	Display Type	☐ Mono / Gray ☒ RGB Color ☐ Non-RGB Multicolor
COLOR	Red	x: 0.635 y: 0.333
	Green	x: 0.285 y: 0.605
	Blue	x: 0.152 y: 0.068
	White	x: 0.283 y: 0.298

17.0 RELIABILITY

17.1 MTBF

Required MTBF (Excluding CRT)	60,000 hours by the most current revision of MIL Handbook 217
Thermal Test Plan and Procedures	The Thermal Test Plan and Procedures shall be submitted for ViewSonic review and approval prior to DVT.
Thermal Test Results	Thermal Test Results for DVT and PVT level product shall be submitted for ViewSonic review and approval.
Life Test Plan and Procedures	The Life Test Plan and Procedures shall be submitted for ViewSonic review and approval prior to DVT.
Life Test Duration	The Life Test shall be based on a minimum of 60,000 actual operating hours.
Life Test Samples	Life Test shall be conducted on a minimum of 25 units.
Life Test Failures	Failed units may be repaired and used for further Life Test. Failures shall be noted in the test report.
Life Test Sample ECN/ECO Upgrades	Units under test may be upgraded against an approved ECN/ECO. Hours of test after the upgrade shall be noted in the test report. Hours of test before the upgrade shall not be used in calculating total operating hours.
Preliminary Life Test Results	Preliminary Life Test Results for DVT level product shall be submitted for ViewSonic review and approval prior to Mass Production Release. The preliminary report shall be based on a minimum of 20,000 actual operating hours.
Life Test Results	Life Test Results for DVT level product shall be submitted for ViewSonic review and approval no later than 90 days after Mass Production Release.

TIMING CHART

A	Period
B	Blanking
C	Sync Width
D	Back Porch
E	Active
F	Front Potch

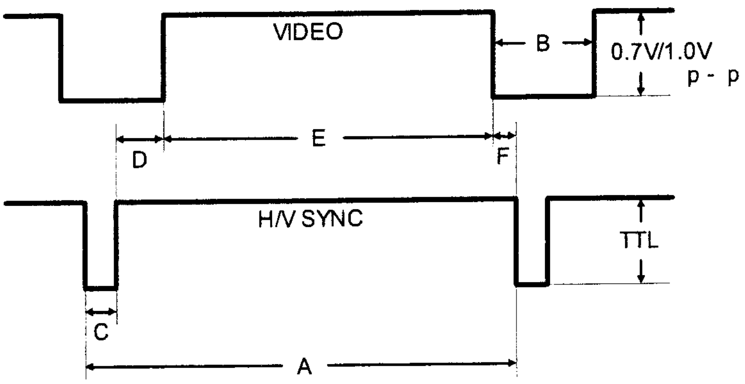


Fig.1

		PRESET	RESERVATION	RESERVATION
		MODE - 1	MODE - 2	MODE - 3
		1280 × 1024 (75)	640 × 480 (60)	640 × 480 (75)
DOT CLOCK		135.0000 MHz	25.1745 MHz	31.5000 MHz
H	f H	79.9763 kHz	31.4681 kHz	37.5000 kHz
	A - PERIOD	12.504 µs (1,688 dots)	31.778 µs (800 dots)	26.667 µs (840 dots)
	B - BLANKING TIME	3.022 µs (408 dots)	6.356 µs (160 dots)	6.349 µs (200 dots)
	C - SYNC WIDTH	1.067 µs (144 dots)	3.813 µs (96 dots)	2.032 µs (64 dots)
	D - BACK PORCH	1.837 µs (248 dots)	1.907 µs (48 dots)	3.810 µs (120 dots)
	E - ACTIVE TIME	9.481 µs (1,280 dots)	25.423 µs (640 dots)	20.317 µs (640 dots)
	F - FRONT PORCH	0.119 µs (16 dots)	0.636 µs (16 dots)	0.508 µs (16 dots)
V	f V	75.0247 Hz	59.9393 Hz	75.0000 Hz
	A - PERIOD	13.329 ms (1,066 lines)	16.684 ms (525 lines)	13.333 ms (500 lines)
	B - BLANKING TIME	0.525 ms (42 lines)	1.430 ms (45 lines)	0.533 ms (20 lines)
	C - SYNC WIDTH	0.038 ms (3 lines)	0.064 ms (2 lines)	0.080 ms (3 lines)
	D - BACK PORCH	0.475 ms (38 lines)	1.049 ms (33 lines)	0.427 ms (16 lines)
	E - ACTIVE TIME	12.804 ms (1,024 lines)	15.254 ms (480 lines)	12.800 ms (480 lines)
	F - FRONT PORCH	0.013 ms (1 lines)	0.318 ms (10 lines)	0.027 ms (1 lines)
SYNC POLARITY(H/V)		Positive / Positive	Negative / Negative	Negative / Negative

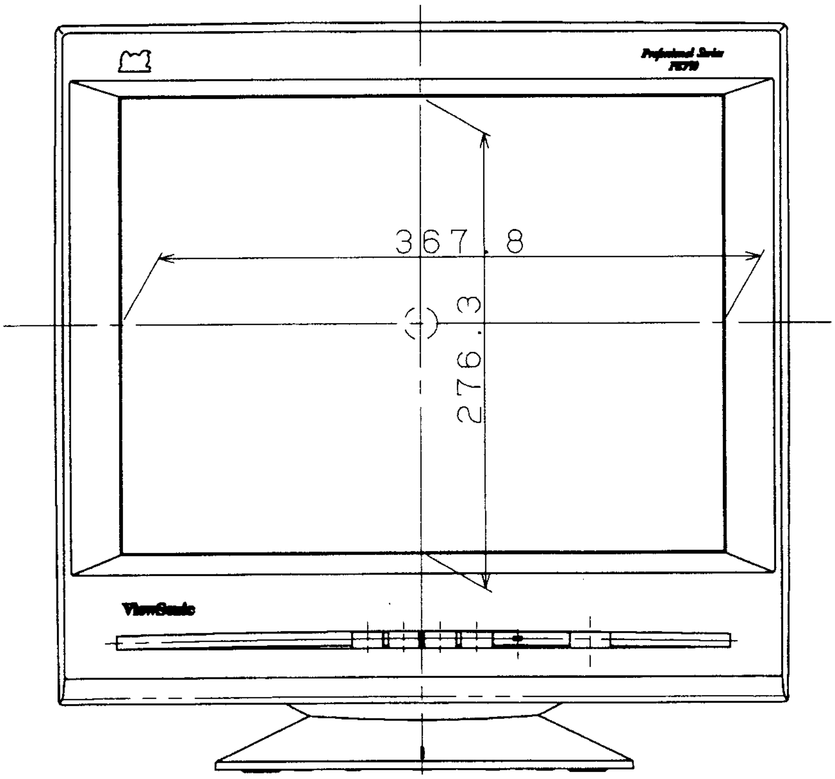
		RESERVATION	RESERVATION	RESERVATION
		MODE - 4	MODE - 5	MODE - 6
		800 × 600 (75)	MAC 832 × 624	1600 × 1200 (75)
DOT CLOCK		49.5000 MHz	57.2832 MHz	202.5000 MHz
H	f H	46.8750 kHz	49.7250 kHz	93.7500 kHz
	A - PERIOD	21.333 µs (1,056 dots)	20.111 µs (1,152 dots)	10.667 µs (2,160 dots)
	B - BLANKING TIME	5.172 µs (256 dots)	5.586 µs (320 dots)	2.765 µs (560 dots)
	C - SYNC WIDTH	1.616 µs (80 dots)	1.117 µs (64 dots)	0.948 µs (192 dots)
	D - BACK PORCH	3.232 µs (160 dots)	3.910 µs (224 dots)	1.501 µs (304 dots)
	E - ACTIVE TIME	16.162 µs (800 dots)	14.524 µs (832 dots)	7.901 µs (1,600 dots)
	F - FRONT PORCH	0.323 µs (16 dots)	0.559 µs (32 dots)	0.316 µs (64 dots)
V	f V	75.0000 Hz	74.5502 Hz	75.0000 Hz
	A - PERIOD	13.333 ms (625 lines)	13.414 ms (667 lines)	13.333 ms (1,250 lines)
	B - BLANKING TIME	0.533 ms (25 lines)	0.865 ms (43 lines)	0.533 ms (50 lines)
	C - SYNC WIDTH	0.064 ms (3 lines)	0.060 ms (3 lines)	0.032 ms (3 lines)
	D - BACK PORCH	0.448 ms (21 lines)	0.784 ms (39 lines)	0.491 ms (46 lines)
	E - ACTIVE TIME	12.800 ms (600 lines)	12.549 ms (624 lines)	12.800 ms (1,200 lines)
	F - FRONT PORCH	0.021 ms (1 lines)	0.020 ms (1 lines)	0.011 ms (1 lines)
SYNC POLARITY(H/V)		Positive / Positive	Negative / Negative	Positive / Positive

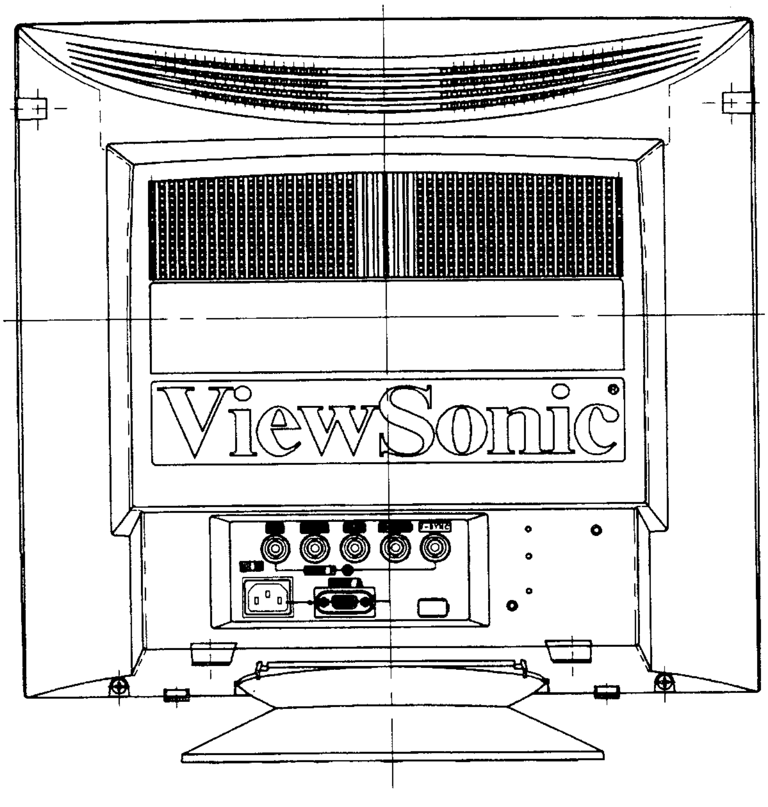
		RESERVATION	RESERVATION
		MODE - 7	MODE - 8
		MAC 1152 × 870 (75)	1024 × 768 (75)
DOT CLOCK		100.0000 MHz	78.7500 MHz
H	f H	68.6813 kHz	60.0229 kHz
	A - PERIOD	14.560 µs (1,456 dots)	16.660 µs (1,312 dots)
	B - BLANKING TIME	3.040 µs (304 dots)	3.657 µs (288 dots)
	C - SYNC WIDTH	1.280 µs (128 dots)	1.219 µs (96 dots)
	D - BACK PORCH	1.440 µs (144 dots)	2.235 µs (176 dots)
	E - ACTIVE TIME	11.520 µs (1,152 dots)	13.003 µs (1,024 dots)
	F - FRONT PORCH	0.320 µs (32 dots)	0.203 µs (16 dots)
V	f V	75.0616 Hz	75.0286 Hz
	A - PERIOD	13.322 ms (915 lines)	13.328 ms (800 lines)
	B - BLANKING TIME	0.655 ms (45 lines)	0.533 ms (32 lines)
	C - SYNC WIDTH	0.044 ms (3 lines)	0.050 ms (3 lines)
	D - BACK PORCH	0.568 ms (39 lines)	0.466 ms (28 lines)
	E - ACTIVE TIME	12.667 ms (870 lines)	12.795 ms (768 lines)
	F - FRONT PORCH	0.044 ms (3 lines)	0.017 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative	Positive / Positive

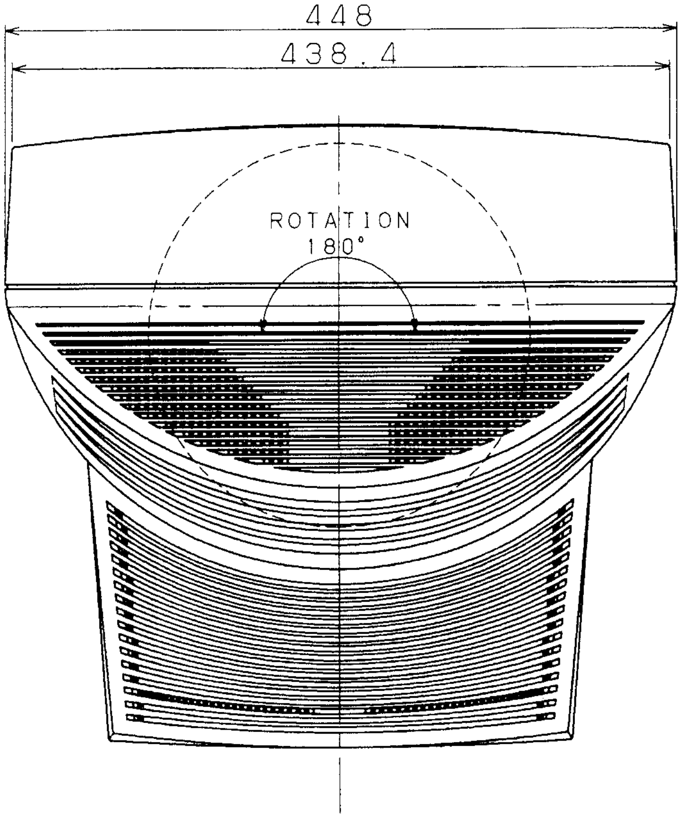
		ADJUSTMENT	ADJUSTMENT	ADJUSTMENT
		HV10H - 1	HV10H - 2	HV10H - 3
DOT CLOCK		22.5900 MHz	91.6240 MHz	160.6320 MHz
H	f H	29.1108 KHz	52.1777 KHz	75.2022 KHz
	A - PERIOD	34.351 µs (776 dots)	19.165 µs (1,756 dots)	13.297 µs (2,136 dots)
	B - BLANKING TIME	6.906 µs (156 dots)	4.235 µs (388 dots)	3.187 µs (512 dots)
	C - SYNC WIDTH	3.320 µs (75 dots)	1.746 µs (160 dots)	1.145 µs (184 dots)
	D - BACK PORCH	2.258 µs (51 dots)	1.768 µs (162 dots)	1.544 µs (248 dots)
	E - ACTIVE TIME	27.446 µs (620 dots)	14.931 µs (1,368 dots)	10.110 µs (1,624 dots)
	F - FRONT PORCH	1.328 µs (30 dots)	0.720 µs (66 dots)	0.498 µs (80 dots)
V	f V	47.4891 Hz	92.3499 Hz	137.2304 Hz
	A - PERIOD	21.057 ms (613 lines)	10.828 ms (565 lines)	7.287 ms (548 lines)
	B - BLANKING TIME	0.927 ms (27 lines)	0.556 ms (29 lines)	0.426 ms (32 lines)
	C - SYNC WIDTH	0.103 ms (3 lines)	0.057 ms (3 lines)	0.040 ms (3 lines)
	D - BACK PORCH	0.721 ms (21 lines)	0.479 ms (25 lines)	0.372 ms (28 lines)
	E - ACTIVE TIME	20.130 ms (586 lines)	10.273 ms (536 lines)	6.861 ms (516 lines)
	F - FRONT PORCH	0.103 ms (3 lines)	0.019 ms (1 lines)	0.013 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative	Negative / Negative	Negative / Negative

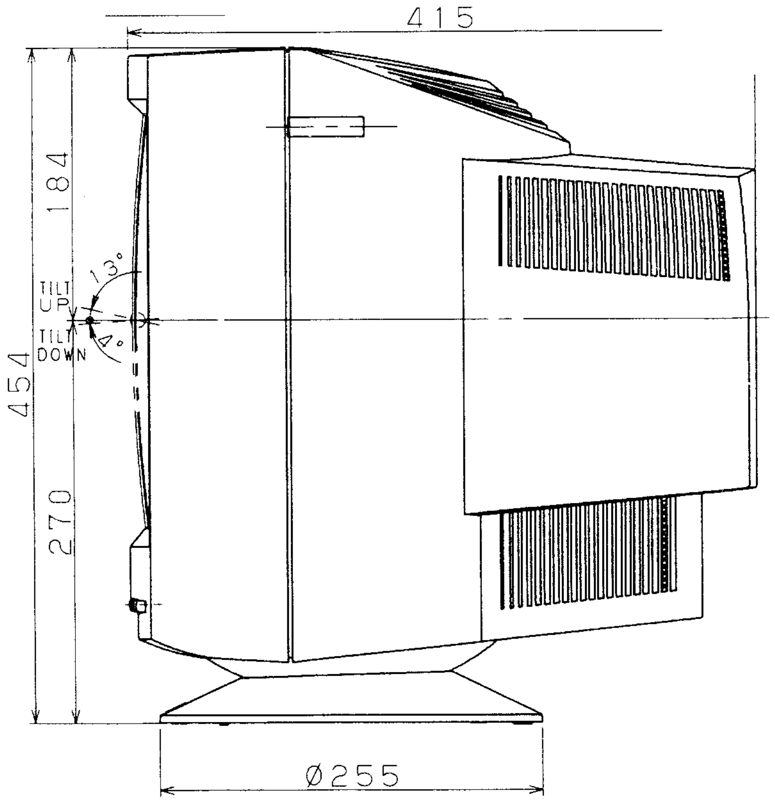
		ADJUSTMENT
		HV10H - 4
DOT CLOCK		230.1100 MHz
H	f H	96.5227 KHz
	A - PERIOD	10.360 µs (2,384 dots)
	B - BLANKING TIME	2.694 µs (620 dots)
	C - SYNC WIDTH	0.834 µs (192 dots)
	D - BACK PORCH	1.495 µs (344 dots)
	E - ACTIVE TIME	7.666 µs (1,764 dots)
	F - FRONT PORCH	0.365 µs (84 dots)
V	f V	182.1182 Hz
	A - PERIOD	5.491 ms (530 lines)
	B - BLANKING TIME	0.363 ms (35 lines)
	C - SYNC WIDTH	0.031 ms (3 lines)
	D - BACK PORCH	0.321 ms (31 lines)
	E - ACTIVE TIME	5.128 ms (495 lines)
	F - FRONT PORCH	0.010 ms (1 lines)
SYNC POLARITY(H/V)		Negative / Negative

DIMENSIONS


Professional Series
367.8
276.3
ViewSonic




448
438.4
ROTATION
180°

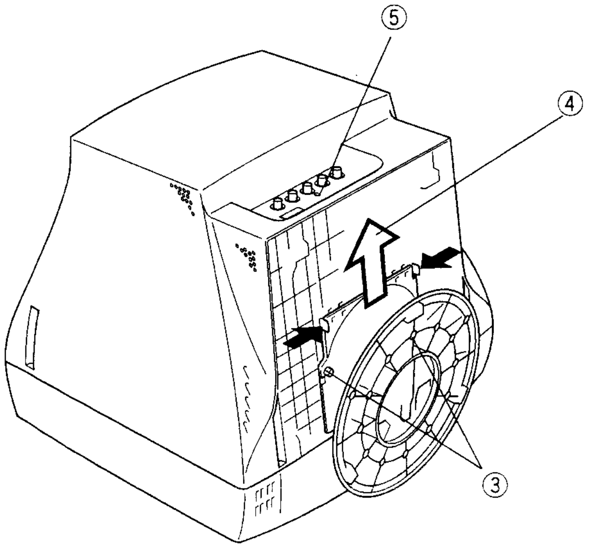

415
184
454
270
TILT UP
TILT DOWN
13°
4°
Ø255

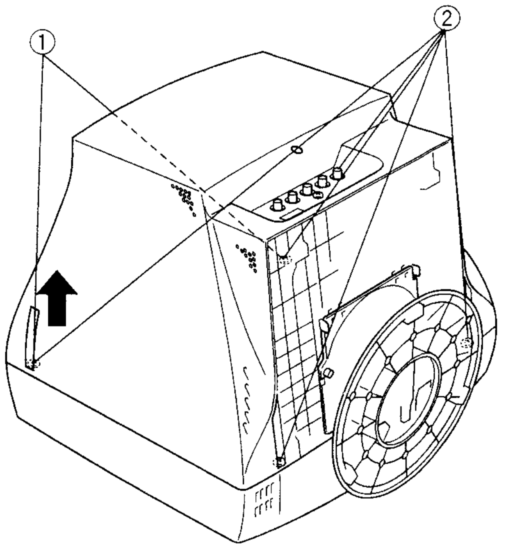
DISASSEMBLY INSTRUCTIONS

1. Rear cover removal

Note: Spread a mat underneath to avoid damaging the CRT surface.

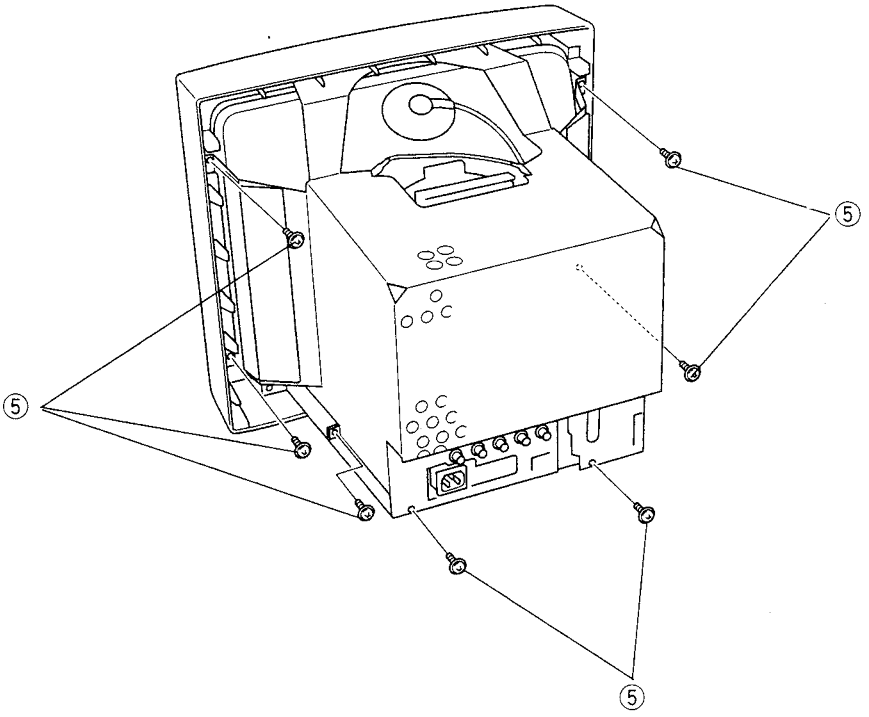
1) Remove the two screw covers. ①
2) Remove the five screws.②
3) Remove the monitor stand.
   Pull a stand upward after you push a lock part inside.③,④





2. Video PCB removal

Remove the seven screws .

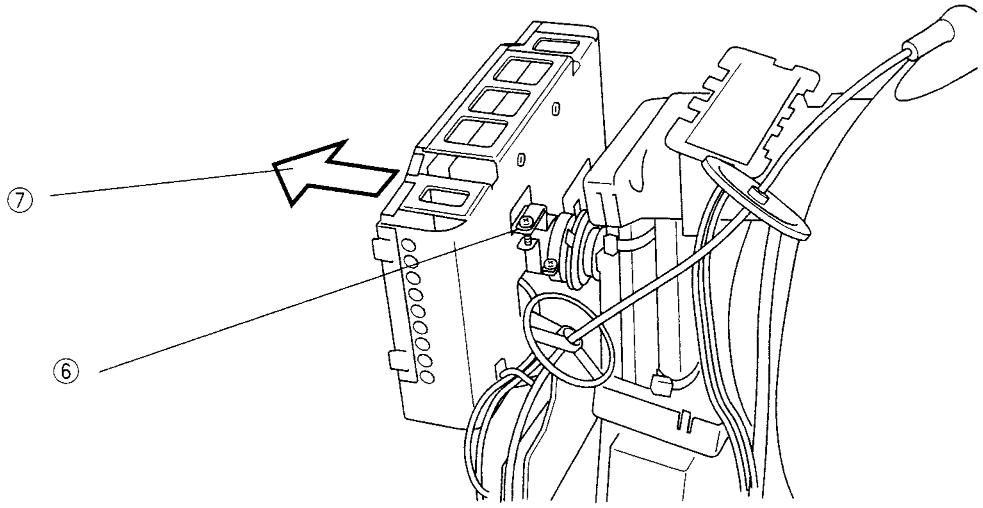


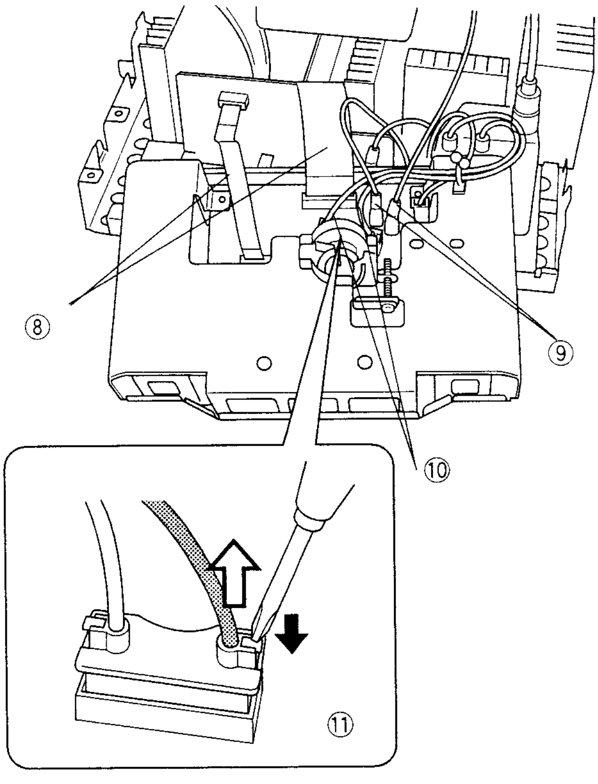
3. Video PCB removal

1) Loosen the screw for video PCB fixation.⑥
2) Quote video PCB at the back,and remove it.⑦
3) Remove the two flexible PCB.⑧

Note: Do not bend or damage the flexible PCB when handling it.

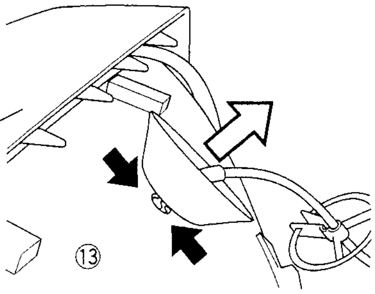
4) Disconnect the two connetors.⑨
5) Remove the two wires than FBT.⑩
   Push a guide,and pull out a wire.⑪

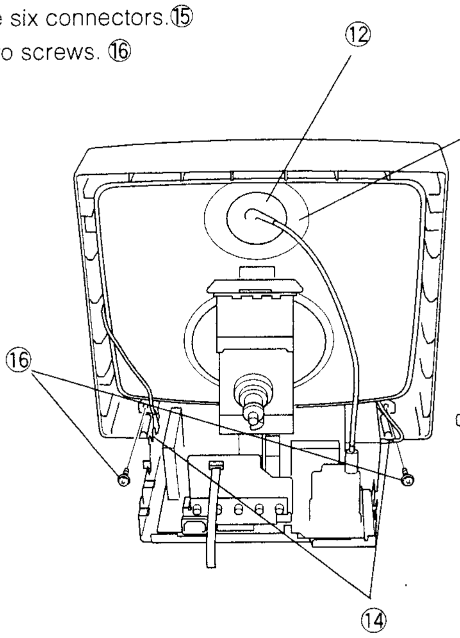


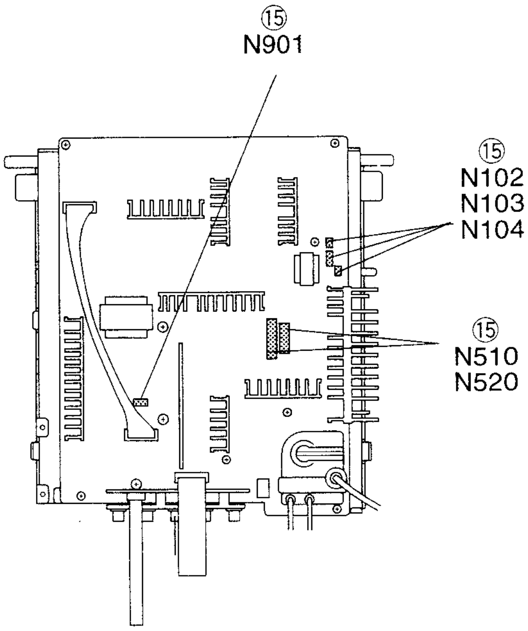


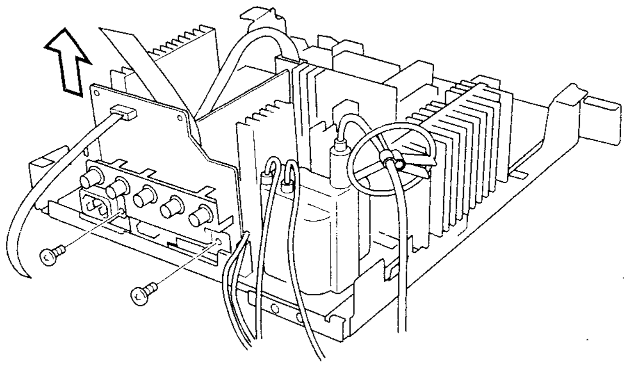
4. Main PCB block removal.

1) Remove the anode cap.⑫ ⑬.
2) Disconnect the two GND terminals.⑭
3) Disconnect the six connectors.⑮
4) Remove the two screws. ⑯



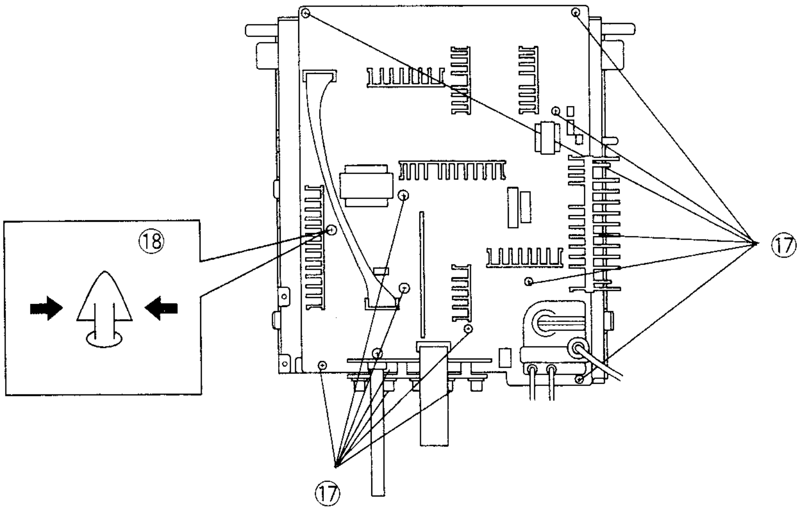



⑮
N901
⑮
N102
N103
N104
⑮
N510
N520



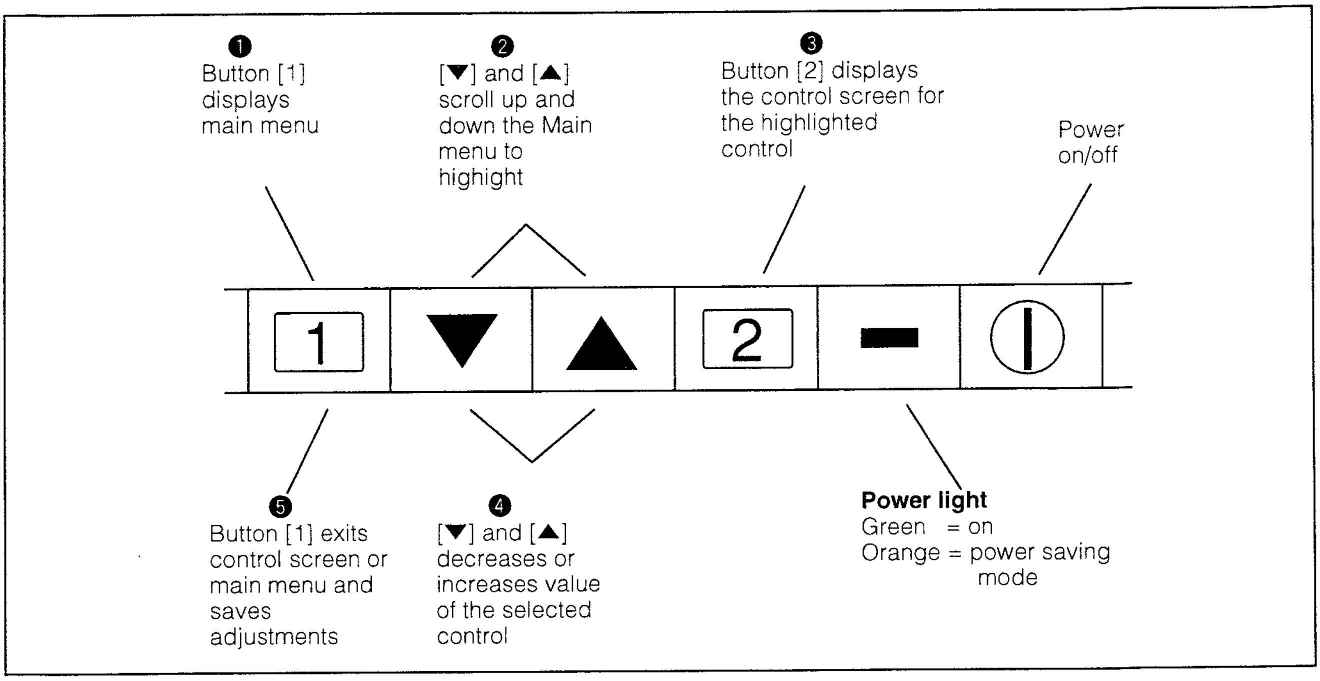
5. Main PCB removal

1) Remove the 13 screws.⑰
2) Unlock a rivet.⑱



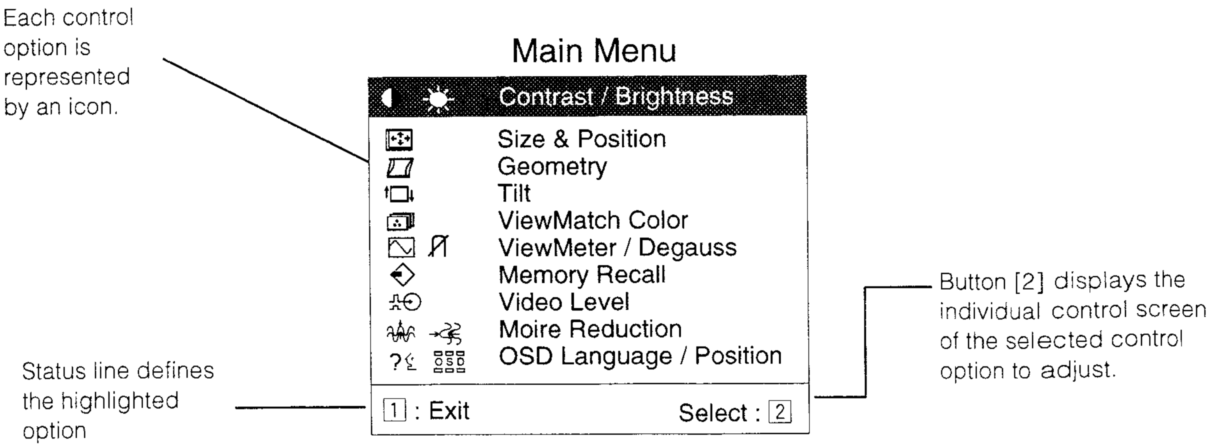
CONTROL LOCATION

Front Control Panel


❶ Button [1] displays main menu
❷ [▼] and [▲] scroll up and down the Main menu to highight
❸ Button [2] displays the control screen for the highlighted control
Power on/off
1
▼
▲
2
❺ Button [1] exits control screen or main menu and saves adjustments
❹ [▼] and [▲] decreases or increases value of the selected control
Power light
Green = on
Orange = power saving mode

OnView® Main Menu

1 Press button [1] to display the Main Menu shown below.
2 Press the [▼] or [▲] buttons to select a control option to adjust.
3 Press button [2] for an individual control screen.
4 At each individual control screen,press the [▼] or [▲] to make adjustments.
5 Press button [1] to save changes and exit the screen.The Main Menu also clears automatically approximately 20 seconds after pressing button.


Each control option is represented by an icon.
Main Menu
Contrast / Brightness
Size & Position
Geometry
Tilt
ViewMatch Color
ViewMeter / Degauss
Memory Recall
Video Level
Moire Reduction
OSD Language / Position
1 : Exit
Select : 2
Status line defines the highlighted option
Button [2] displays the individual control screen of the selected control option to adjust.

CAUTION FOR ADJUSTMENT AND REPAIR

1. Degaussing is inevitably required at purity adjustment or convergence adjustment.
2. If you check or adjust electrical specification or function, more than 20 minutes burn-in is required.
3. Reforming of the lead wire is required after your repair work.
4. Prior to starting work, be sure to check that the input signal is at the specified timing and that the polarity is as specified in all modes.
5. Brightness control: After mounting the rear cover, brightness tends to decrease about 5 cd/m^2 on a flat white field and about 1 cm/m^2 on a white raster field. This should be taken into consideration.
6. Brightness stabilizing time: It takes about 20 to 50 seconds for the brightness to stabilize after turning the power off for 5 seconds (AC). Therefore, care should be taken to this.
7. Aging should be made in white raster of 30 ~ 50 cd/m^2 and raster size, 350 x 264 mm before adjusting the ITC.
8. Set the CONTRAST to MAX and BRIGHTNESS to CENTER using the O.S.D.

CAUTION FOR SERVICING

When servicing or replacing the CRT, high voltage sometimes remains on the anode. So, completely discharge high voltage before servicing or replacing the CRT so as to prevent a shock to the service person.

CRT Anode Discharge

1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of CRT, especially when checked right after power turn-off.
2. Ground one end of a jumper wire which has a resistor (30 kV < resisting pressure 100 MΩ) and connect the other point to the CRT anode.

Note: Grounding must be done first.

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may be hit by an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.

ADJUSTMENT AND CHECK PROCEDURE

INTRODUCTION

- This monitor is controlled by a microcomputer. With the exception of purity/convergence/focus all is digitally adjusted.
  Therefore a computer, the dedicated control software, the dedicated interface, a 9~12 V power supply, and a signal generator are required servicing.

TOOLS REQUIRED

- **Computer**
  The control software is IBM PC compatible only. Therefore, it is not compatible with any other operating systems. For further information please contact our sales office.

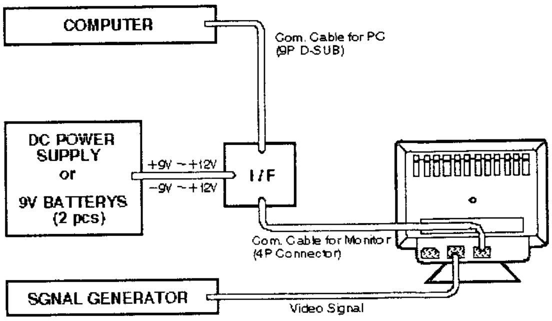
- **Control Software**
  The HV10H chassis can only use adjustment program disk" for this model. No other program can access the EEPROM on the monitor. For further information please contact our sales office.

- **Interface**
  The interface is dedicated to work only with the control software and the HV chassis. There are no substitutes for this interface. For further information please contact our sales office.

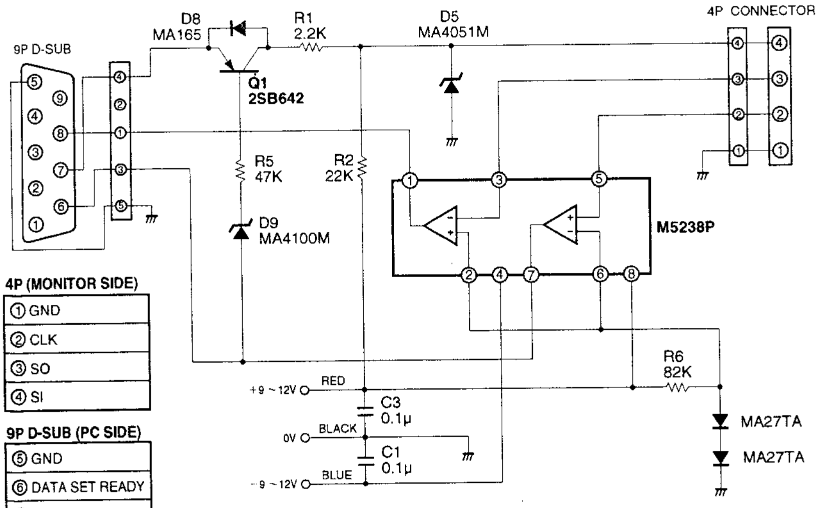
- **Power Supply**
  A DC 9~12 V (+9~12 V/-9~12 V) power supply is required for operating the interface.

- **Signal Generator**
  It is necessary for you to use a signal generator which operates on fH 97 kHz, fv 185 Hz, and fc 240MHz bands.

INTERFACE CONNECTION

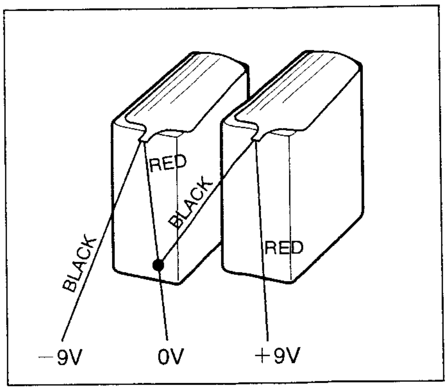

COMPUTER
Com. Cable for PC (9P D-SUB)
DC POWER SUPPLY or 9V BATTERYS (2 pcs)
+9V ~+12V
-9V ~+12V
I/F
Com. Cable for Monitor (4P Connector)
SIGNAL GENERATOR
Video Signal

INTERFACE SCHEMATIC DIAGRAM


D8
MA165
R1
2.2K
D5
MA4051M
4P CONNECTOR
9P D-SUB
Q1
2SB642
R5
47K
R2
22K
D9
MA4100M
M5238P
R6
82K
MA27TA
MA27TA
+9 ~ 12V
RED
C3
0.1μ
0V
BLACK
C1
0.1μ
-9 ~ 12V
BLUE

4P (MONITOR SIDE)
① GND
② CLK
③ SO
④ SI

9P D-SUB (PC SIDE)
⑤ GND
⑥ DATA SET READY
⑦ REQUEST TO SEND
⑧ CLEAR TO SEND


RED
BLACK
BLACK
RED
-9V
0V
+9V

BATTERY CONNECTION

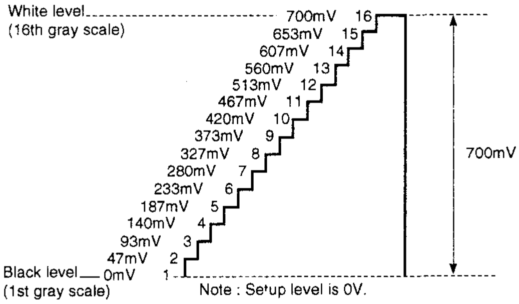
OTHER TOOLS

- Oscilloscope (dual trace)
- Scope probe – Attenuation: 100:1
  Attenuation: 10:1
- Digital Voltmeter – Range: 0 to 1000 V DC
  Accuracy: 0.1 %
- TV color Analyzer II – that reads luminance and chromaticity X and Y coordinates.
- High Voltag Probe
- AC power supply – Output voltage : 0 to 300 V
- Degaussing coil
- Convergence meter
- Scale
- Microscope – Scale factor: 50

STANDARD CONDITION OF ADJUSTMENT PROCEDURE

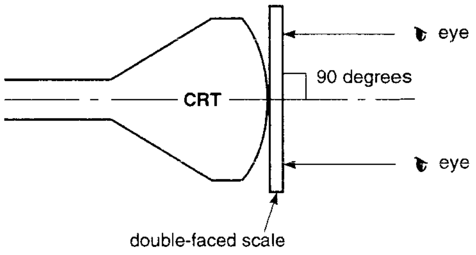
- Signal timing : Preset timing
- Display pattern : White, full "H" character
- Signal level : V/H: TTL level video: 700 mV
- Input source : AC 100~240 V, 50/60 Hz
- Ambient temperature : Room temperature
- Warm-up time : More than 30 minutes
- Brightness control : Center
- Contrast control : Max.
- Magnetic field : Vertical: 40 μT
  Horizontal: 0 μT
- Signal cable : Attached

Video input signal from PC.



Note : Setup level is 0V.

- Use a Helmholtz device to adjust an unit with no horizontal magnetic field and a vertical field of 40 μT. Inspect the unit under the same conditions.
- The ambient illuminance must be 200 lux.
- Use an external degaussing coil any time the DEGAUSS switch does not remove color shading.
- To check the image width, height, linearity and distortion, proceed as below.



ADJUSTMENT SOFTWARE

1. Software operating procedure

A) Power on the computer.

B) Connect the Communication cable for monitor adjustment.

C) Insert the adjustment disk into the drive.

D) At the A:> prompt type **"VSR"** , then press [ENTER].

> A function to identify the connected monitor is provided to prevent accidents due to erroneous use of the HV10H chassis program. If this program is used for any monitor other than the HV10H, the message reading "This monitor is not an HV10H chassis. All further activity has been prevented" is displayed and the operation is stopped.

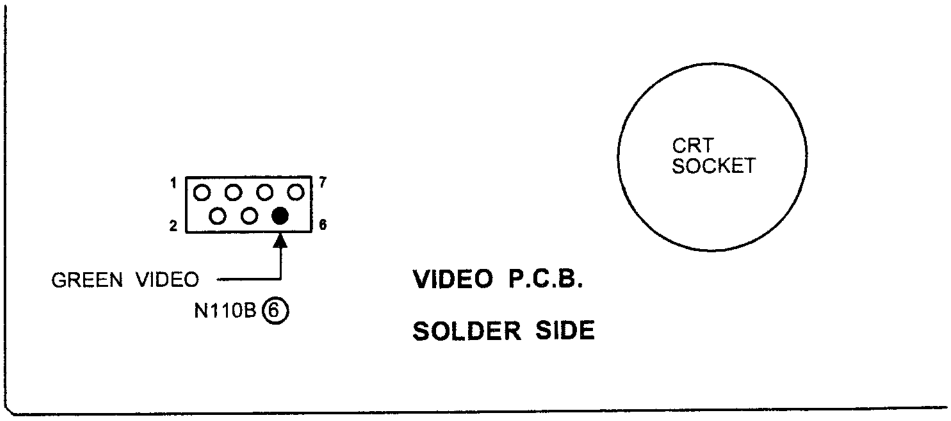
E) Refer to the adjustment procedures.

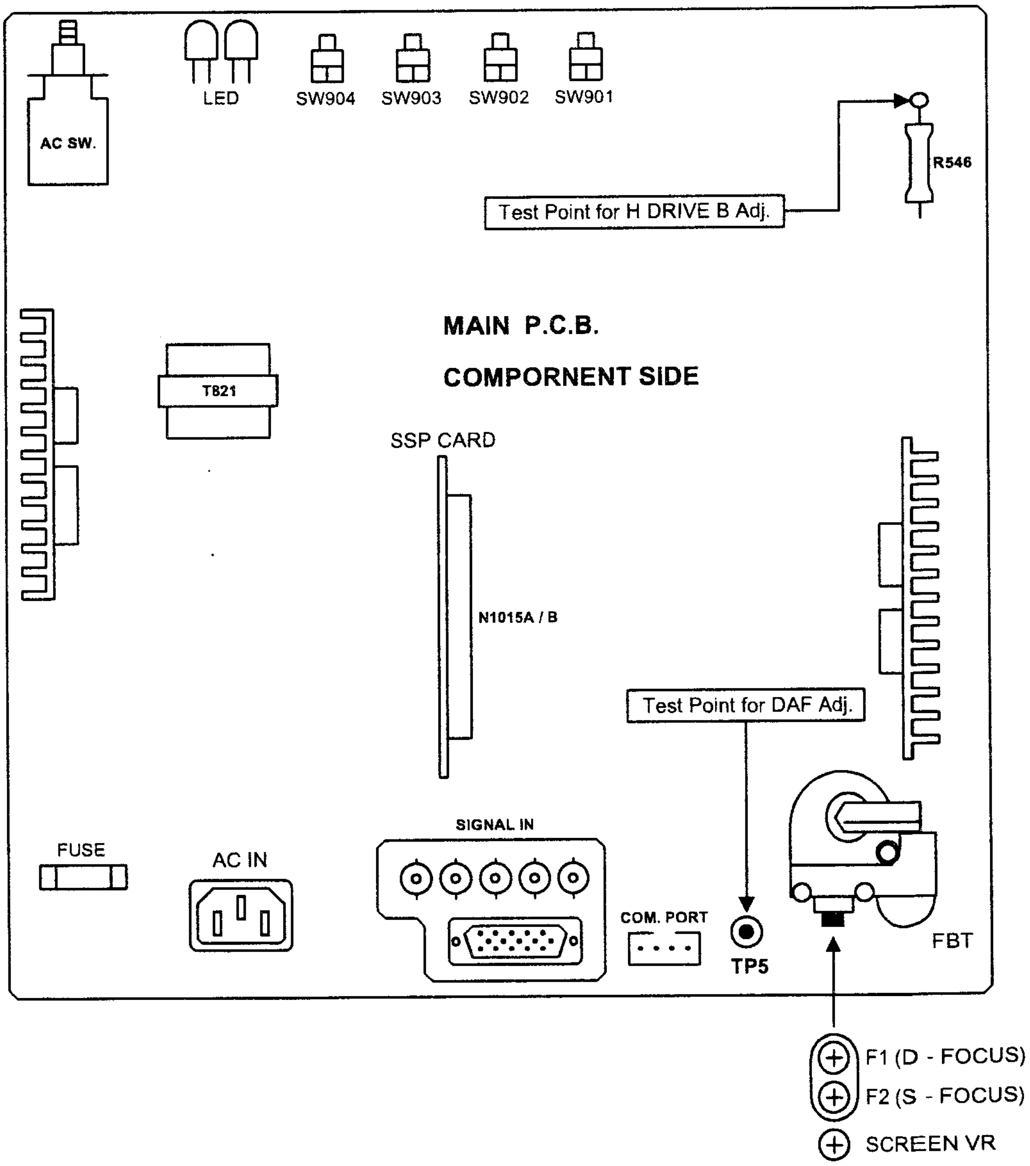
2. Adjustment Program

Main Menu of Adjustment Program

```
      <<HV10H ADJUSTMENT PROGRAM MENU>>
                            (e: exit, q: quit)  <Ver *.*>
 1) Load data from FILE      6) Save data to FILE
 2) Adjust VSR setting       7) Special ADJUST
 3) Adjust STD setting       8) Information Service
 3) Adjust Factory preset    9) Show Version & Error
 5) Clear User preset       10) DDC EDID Date seeting
```

SERVICE ADJUSTMENT CONTROL LOCATION


1
7
2
6
CRT SOCKET
GREEN VIDEO
N110B ⑥
VIDEO P.C.B.
SOLDER SIDE


AC SW.
LED
SW904
SW903
SW902
SW901
R546
Test Point for H DRIVE B Adj.
T821
MAIN P.C.B.
COMPORNENT SIDE
SSP CARD
N1015A / B
Test Point for DAF Adj.
SIGNAL IN
FUSE
AC IN
COM. PORT
TP5
FBT
F1 (D - FOCUS)
F2 (S - FOCUS)
SCREEN VR

REQUIRED ADJUSTMENT PROCEDURE AFTER A PARTS IS REPLACED (✓ IS REQUIRED)

ADJUSTMENT ITEM		REPLACED PARTS																
		MAIN P.C.B.	SSP CARD	VIDEO P.C.B.	CRT DY	IC1301 IC1302 IC1303 IC1305 IC1331	Q1065 Q1165 Q1265	IC490	IC580	Q550 IC850 Q881	FBT IC671 Q601							
A	DATA SETTING *	✓	✓															
B	H. DRIVE +B ADJUST	✓	✓						✓									
C	EHT ADJUST	✓	✓		✓						✓							
D	H CENTER ADJUST	✓	✓		✓					✓								
E	VSR SETTING	✓	✓		✓			✓		✓	✓							
F	PRESET ADJUST	✓	✓		✓			✓		✓	✓							
G	SUB ADJUST	✓	✓		✓			✓		✓	✓							
H	BRIGHTNESS, COLOR	✓	✓	✓	✓	✓	✓				✓							
I	DAF ADJUST	✓	✓		✓						✓							
J	FOCUS ADJUST	✓	✓		✓						✓							
K	DATA SAVING	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
L	DDC DATA SETTING	✓	✓															
	PURITY & CONVERGENCE				✓													
	SCREEN CHECK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							

* (A) DATA SETTING : Do not load standard data except when main PCB and SSP Card are replaced.

ADJUSTMENT PROCEDURE

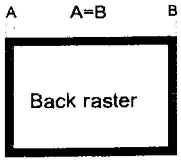
Note 1 : Check to be sure that the program disk name is **PS790** before making necessary adjustment.

Note 2 : Unless otherwise specified, the monitor state is as given at right.

Note 3 : The underlined places indicate the adjustment items on the screen of the PC.

1. Description of Adjustment Method

	ITEM Program Menu	❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
A	**STANDARD DATA SETTING** 1) Load data from FILE		A1		Turn on the power switch of the monitor.	
			A2		Set the cell to the menu at left and press [↵].	
			A3		A massage **FILE -> EEPROM FILE NAME (q or Q escape) [ ] :** is displayed. So key in the DACDATA.DAT (when using the standard data) and press [↵].	
			AE		Turn off the power switch of the monitor, then turn on again.	
	Do not load standard data except when Main P.C.B. and SSP Card are replaced.					
B	**H. DRIVE +B** 2) Adjust VSR setting	❖ Digital Voltmeter ⊙ R546 ~ GND Refer to Service Adjustment Control Location for this connect point. ☐ Crosshatch	B1		Set the cell to the menu at left and press [↵].	
			B2		Set the cell to the adjusting mode INTP [0] and press [↵].	
			B3	HV10H-1	Check that the input signal to the monitor is [fH 29.1KHz] and [fV 47.5Hz] and press [↵].	
			B4		Set the cell to H. DRIVE +B and press [↵].	
			B5		Make the adjustment to the value shown at right by using [←] and [→].	19.5V ±0.5V
			B6		Register by press [↵] and return to menu of **B2** by press [**E**].	
			B7	HV10H-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	
			B8		Select Adjusting mode INTP [1], and repeat above (**B4 B5 B6**) procedure.	19.5V ±0.5V
			B9	HV10H-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	
			B10		Select Adjusting mode INTP [2], and repeat above (**B4 B5 B6**) procedure.	19.0V ±0.5V
			B11	HV10H-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	
			B12		Select Adjusting mode INTP [3], and repeat above (**B4 B5 B6**) procedure.	18.5V ±0.5V
			BE		Press [**E**] to return to main menu.	

	ITEM Program Menu	❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
C	**EHT ADJUST**	❖ Digital Voltmeter	C1		Turn the power switch of the monitor OFF.	
	3) Adjust OTHER setting	❖ High Voltage Probe	C2		Connect high voltage probe to Anode Cap and GND.	
			C3		Turn the power switch of the monitor ON.	
		⊙ Anode Cap ~ GND	C4		Set the cell to the menu at left and press [↵].	
	Adjust NON-VSR Setting	☐ RGB off (Sync only)	C5		Set the cell to Adjust NON-VSR Setting and press [↵].	
			C6	HV10H-4	Check that the input signal to the monitor is [fH 96.5kHz] and [fV 182.1Hz] and press [↵].	
			C7		Move the cell to EHT and press [↵].	
			C8		Make adjustment to the value shown at right by using [←] and [→].	25kV ±0.3kV
			CE		Register by pressing [↵] and return to menu of **C5**, then return to the main menu by pressing [**E**].	
D	**H. CENTER**	☐ RGB off (Sync only)	D1		Set the Brightness to MAX by using OSD.	
	2) Adjust VSR setting		D2		Set the cell to the menu at left and press [↵].	
			D3		Set the cell to the adjusting mode INTP [0] and press [↵].	
			D4	HV10H-1	Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz] and press [↵].	Set the raster to the center with respect to the bezel.
			D5		Set the cell to H CENTER and press [↵].	
			D6		Make the adjustment to the value shown at right by using [←] and [→].	
			D7		Press [↵] to register, and return to menu of **D3**.	
			D8	HV10H-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	
			D9		Select Adjusting mode INTP [1], and repeat above (**D5 D6 D7**) procedure.	
			D10	HV10H-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	
			D11		Select Adjusting mode INTP [2], and repeat above (**D5 D6 D7**) procedure.	
			D12	HV10H-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	
			D13		Select Adjusting mode INTP [3], and repeat above (**D5 D6 D7**) procedure.	
			DE		Return to the main menu by pressing [**E**].	

ITEM Program Menu		❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
E	**VSR SETTING** 2) Adjust VSR Setting	☐ Crosshatch	E1		Set the cell to the menu at left and press [↵].	
			E2		Set the cell to the adjusting mode INTP [0] and press [↵].	
			E3	HV10H-1	Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz] and press [↵].	
	V Position adjustment do not register to interpolation data.		E4		Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→]. * V POSITION ① H. SIZE ③ V SIZE ② H POSITION ④ V PCC GAIN	① : 352mm ±5 ③ : 264mm ±5 ② / V Posi : Center ④ : Best point
			E5		Press [↵] to register, and return to menu of **E2**.	
			E6	HV10H-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	
			E7		Select Adjusting mode INTP [1], and repeat above (**E4 E5**) procedure.	
			E8	HV10H-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	
			E9		Select Adjusting mode INTP [2], and repeat above (**E4 E5**) procedure.	
			E10	HV10H-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	
			E11		Select Adjusting mode INTP [3], and repeat above (**E4 E5**) procedure.	
			EE		Return to the main menu by pressing [**E**].	
F	**PRESET ADJUST** 4) Adjust Factory preset	☐ Crosshatch	F1	Mode-1	Set the cell to the menu at left and press [↵].	
			F2		Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and press [↵].	
			F3		Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→]. ① H. SIZE ⑤ V. PCC ② H. POSI ⑥ V. PCC BALANCE ③ V. SIZE ⑦ TRAPEZOID ④ V. POSI ⑧ PARALLEL	① : 352mm ±5 ③ : 264mm ±5 ②④ : Center ⑤⑥⑦⑧ : Best point
			F4		After adjustment, return to main menu by pressing [**E**] and [**Y**].	
			F5	Mode-2	Check that the input signal to the monitor is [fH 31.5KHz] and [fV 60.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
			F6		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	
			F7		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**]. **- To be continued -**	

	ITEM Program Menu	❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
F	**PRESET ADJUST** 4) Adjust Factory preset	☐Crosshatch	F8	Mode-3	Check that the input signal to the monitor is [fH 37.5KHz] and [fV 75.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F9		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			F10		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**].	Best point
			F11	Mode-4	Check that the input signal to the monitor is [fH 46.9KHz] and [fV 75.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F12		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			F13		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**].	Best point
			F14	Mode-5	Check that the input signal to the monitor is [fH 49.7KHz] and [fV 74.5Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F15		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			F16		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**].	Best point
			F17	Mode-6	Check that the input signal to the monitor is [fH 93.7KHz] and [fV 75.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F18		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			F19		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**].	Best point
			F20	Mode-7	Check that the input signal to the monitor is [fH 68.7KHz] and [fV 75.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F21		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			F22		After adjustment, return to the menu of **F2** by pressing [**E**] and [**Y**].	Best point
			F23	Mode-8	Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and press [↵].	① : 352mm ±7 ③ : 264mm ±7
			F24		Make adjustment ①~⑧ of **F3** to the value shown at right by using [←] and [→].	②④ : Center ⑤⑥⑦⑧ :
			FE		After adjustment, return to the menu of **F2** by pressing [**E**] and [**N**], then return to the main menu by pressing [**E**].	Best point

	ITEM Program Menu	❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
G	**SUB ADJUST** 3) Adjust OTHER setting	☐ Crosshatch	G1		Set the cell to the menu at left and press [↵], then go to sub menu.	
			G2		Set the cell to Adjust NON-VSR Setting at the sub menu and press [↵].	
	Adjust NON-VSR Setting		G3	Mode-1	Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and press [↵].	
			G4		Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→]. * H. SIZE * H POSITION * V SIZE * V PCC ① V POSITION ⑤ V PCC CORNER ② V LIN (S) ⑥ TRAPEZOID ③ V LIN (C) ⑦ PARALLELOGRAM ④ V PCC (S) ⑧ V PCC BALANCE	②③④⑤⑥⑦⑧: Best point ① / H Posi : Center H : 352mm V : 264mm
			GG		After adjustment, return to menu of **G2** by pressing [**E**], then return to the main menu by pressing [**E**].	
H	**CRT CUT-OFF ADJUST**	❖ TV Color Analyzer II	H1	Mode-1	Set the Contrast to MAX, Brightness to Center and Color is "9300k +8" using the OSD.	
		☐ RGB Off (Sync only)	H2		Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and turn off the RGB signal.	
	3) Adjust OTHER setting		H3		Set the cell to the menu at left and press [↵] .	
	Adjust VIDEO Setting		H4		Set the cell to Adjust VIDEO Setting at the sub menu and press [↵].	
			H5 ~ H14		Make the adjustment R,G and B Low Light by using [←] [→] and Screen VR to CRT cut-off. **Please refer to flow chart for this adjustment on page 30.**	
	BRIGHTNESS / COLOR ADJUST	☐ White window (8cm×8cm at center)	H15 H16		Change to the pattern at left. Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. R. SUB CONT (COLOR0) G. SUB CONT (COLOR0) B. SUB CONT (COLOR0)	Y=120 cd/m^2 x=0.283 ±0.20 y=0.298 ±0.20
			H17 H18		Set Contrast to MIN using the OSD. Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. R. LOW LIGHT G. LOW LIGHT B. LOW LIGHT **Adjust two colors only out of above three as shown in H13 on page 30.**	x=0.283 ±0.20 y=0.298 ±0.20

H Size, H Position, V Size and V PCC adjustment do not register to interpolation data.

- To be continued -

ITEM Program Menu		❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
H			H19 H20	Mode-1	Set Contrast to MAX using the OSD. Check the value shown at right, then If out of range, to repeat **H15~H18**.	Y=120 cd/m^2 x=0.283 ±0.20 y=0.298 ±0.20
	ABL	☐ White flat field (full window)	H21 H22		Change to the pattern at left. Move the cell to ABL (COLOR0) and make the adjustment to the value shown at right by using [←] and [→].	Y=103 cd/m^2
			H23		Press [**E**] to messages will appear. **Start automatic calculation. OK (y/n) ->**	
			H24		Press[**Y**]and [↵]. **Refresh LOW-LIGHT2 data (y/n) ->**	
			H25 H26		Press[**Y**]and [↵], then return to menu of **H4**. Return to the main menu by pressing [**E**].	
	1.0V ADJUST 7) Special ADJUST 1: Adjust VIDEO 1.0Vpp	☐ White window (8cm×8cm at center)	H27 H28 H29 H30		Change to the pattern at left. Change signal to 1.0V p-p Video. Set the cell to the menu at left and press [↵]. Select the 1: Adjust VIDEO 1.0Vpp from the menu.	
			H31		Make the adjustment to the value shown at right by using [←] and [→].	Y=120 cd/m^2
			HE		Press [↵] to return to menu of **H30**, then return to the main menu by pressing [**E**]	
I	**DAF ADJUST** 2) Adjust VSR setting	☐ White flat field ❖ Oscilloscope	I1 I2		Set the cell to the menu at left and press [↵]. Set the cell to the menu at left and press [↵].	
		⊙ TP5~GND 100:1 probe	I3		Set the cell to the adjusting mode INTP [0] and press [↵].	
		⊙ N110B (6) ~ GND 10:1 probe	I4	HV10H-1	Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz].	
			I5 I6		Set the cell to H DAF PHASE and press [↵]. Adjust as shown at below by using [←] and [→], and press [↵] for registration. (Refer to **Fig. I6** for adjustment on next page)	
			I7 I8		Set the cell to H DAF GAIN and press [↵]. Adjust as shown at right by using [←] and [→], and press [↵] for registration. (Refer to **Fig. I8** for adjustment on next page)	C - D = 422V
			I9		Press [↵] to register, and return to menu of **I3**.	
			I10 I11	HV10H-2	Input signal [fH 52.2kHz] and [fV 92.3Hz] Select Adjusting mode INTP [1], and repeat above (**I5 I6 I7 I8 I9**) procedure.	
			I12 I13	HV10H-3	Input signal [fH 75.2kHz] and [fV 137.2Hz] Select Adjusting mode INTP [2], and repeat above (**I5 I6 I7 I8 I9**) procedure.	
			I14 I15	HV10H-4	Input signal [fH 96.5kHz] and [fV 182.1Hz] Select Adjusting mode INTP [3], and repeat above (**I5 I6 I7 I8 I9**) procedure.	
			IE		Return to the main menu by pressing [**E**].	

Fig. I6

Set position to A=B

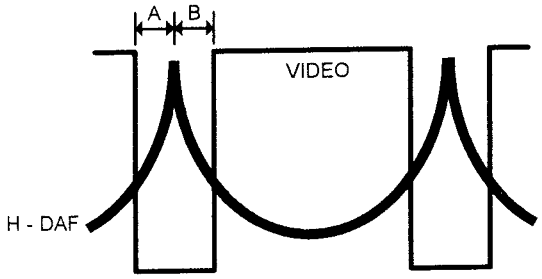
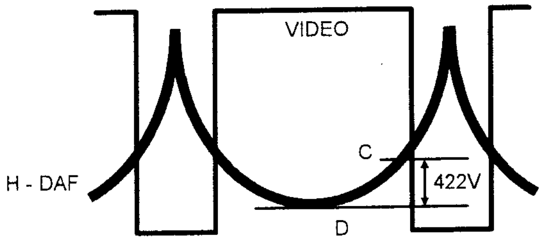


Fig. I8

Set voltage to C - D = 422V

C : Clossing VIDEO and H. DAF

D : Bottom of H. DAF



Oscilloscope Range

HV10H - 1	10 µs / div.
HV10H - 2	5 µs / div.
HV10H - 3	5 µs / div.
HV10H - 4	2 µs / div.

	ITEM Program Menu	❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
J	**FOCUS**	☐ Character	J1	MODE-1	Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz].	
			J2		Make the corner sections of the screen optimum by turning D-FOCUS VR on the FBT.	
			J3		Make the center section optimum by turning S-FOCUS VR on the FBT.	
			J4		Repeat **J2** and **J3** to make it optimum.	
K	**DATA SAVING** 6) Save data to file		K1		Set the cell to the menu at left and press [↵].	
			K2		Key in the file name after [ ] :. Use serial number as a file name (EXAMPLE : ×××80100001 = “80100001.DAT”)	

ITEM Program Menu		❖ Test Meter ⊙ Test Point ☐ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
L	**DDC DATA SET** 7) Special ADJUST 7: Change DDC data		L1		Set the cell to the menu at left and press [↵].	
			L2		Select the 7: Change DDC data from the menu.	
			L3		Key in the monitor **Unit Number** and press [↵]. < ID Serial Number : > (5 digits)	
			L4		Key in the product **Week** and press [↵]. < Week of Manufacture : > (2 digits)	
			L5		Key in the product **Year** and press [↵]. < Year of Manufacture : > (4 digits)	
			L6		Key in the monitor **Serial Number** and press [↵]. < Monitor S/N : > (10 digits)	
			LE		Press [**E**] to return to main menu. To get data of **L3**, **L6** (S/N), and **L4** (week) **L5** (year) by reading **Fig. L** from the Serial Number.	

Fig. L

M C	8	0	1	0	0	0	0	1
①	②	③		④				

① Product Code
② Year Code : 7 means 1998
③ Week Code
④ Unit Number

Example

ID Serial Number --------------- 00001
Week of Manufacture -------- 01
Year of Manufacture --------- 1998
Monitor S/N -------------------- MC80100001

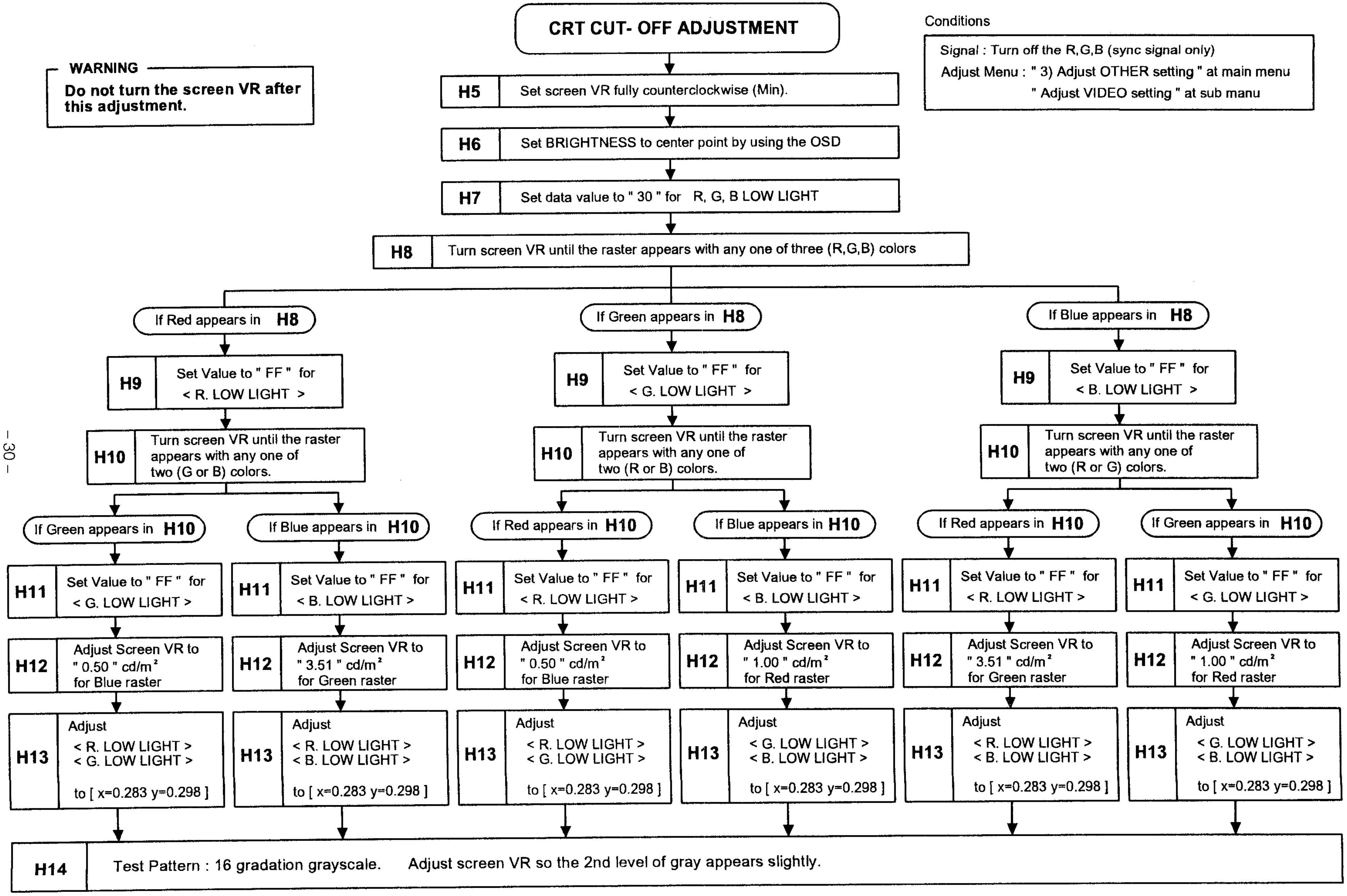
CRT CUT- OFF ADJUSTMENT

WARNING

Do not turn the screen VR after this adjustment.

Conditions

Signal : Turn off the R,G,B (sync signal only)
Adjust Menu : " 3) Adjust OTHER setting " at main menu
" Adjust VIDEO setting " at sub manu



H5 Set screen VR fully counterclockwise (Min).

H6 Set BRIGHTNESS to center point by using the OSD

H7 Set data value to " 30 " for R, G, B LOW LIGHT

H8 Turn screen VR until the raster appears with any one of three (R,G,B) colors

If Red appears in **H8**

- **H9** Set Value to " FF " for < R. LOW LIGHT >
- **H10** Turn screen VR until the raster appears with any one of two (G or B) colors.
  - If Green appears in **H10**
    - **H11** Set Value to " FF " for < G. LOW LIGHT >
    - **H12** Adjust Screen VR to " 0.50 " cd/m^2 for Blue raster
    - **H13** Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [x=0.283 y=0.298]
  - If Blue appears in **H10**
    - **H11** Set Value to " FF " for < B. LOW LIGHT >
    - **H12** Adjust Screen VR to " 3.51 " cd/m^2 for Green raster
    - **H13** Adjust < R. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

If Green appears in **H8**

- **H9** Set Value to " FF " for < G. LOW LIGHT >
- **H10** Turn screen VR until the raster appears with any one of two (R or B) colors.
  - If Red appears in **H10**
    - **H11** Set Value to " FF " for < R. LOW LIGHT >
    - **H12** Adjust Screen VR to " 0.50 " cd/m^2 for Blue raster
    - **H13** Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [x=0.283 y=0.298]
  - If Blue appears in **H10**
    - **H11** Set Value to " FF " for < B. LOW LIGHT >
    - **H12** Adjust Screen VR to " 1.00 " cd/m^2 for Red raster
    - **H13** Adjust < G. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

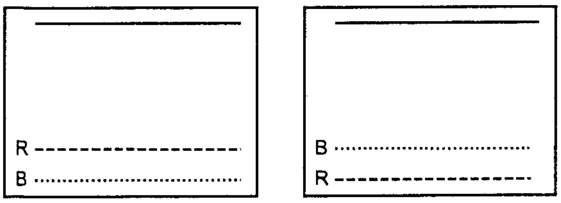
If Blue appears in **H8**

- **H9** Set Value to " FF " for < B. LOW LIGHT >
- **H10** Turn screen VR until the raster appears with any one of two (R or G) colors.
  - If Red appears in **H10**
    - **H11** Set Value to " FF " for < R. LOW LIGHT >
    - **H12** Adjust Screen VR to " 3.51 " cd/m^2 for Green raster
    - **H13** Adjust < R. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]
  - If Green appears in **H10**
    - **H11** Set Value to " FF " for < G. LOW LIGHT >
    - **H12** Adjust Screen VR to " 1.00 " cd/m^2 for Red raster
    - **H13** Adjust < G. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

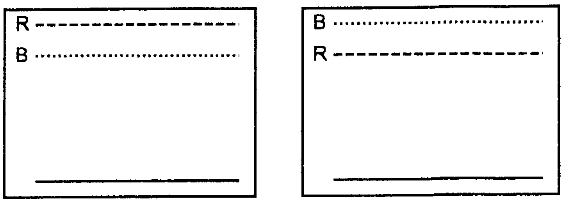
H14 Test Pattern : 16 gradation grayscale. Adjust screen VR so the 2nd level of gray appears slightly.

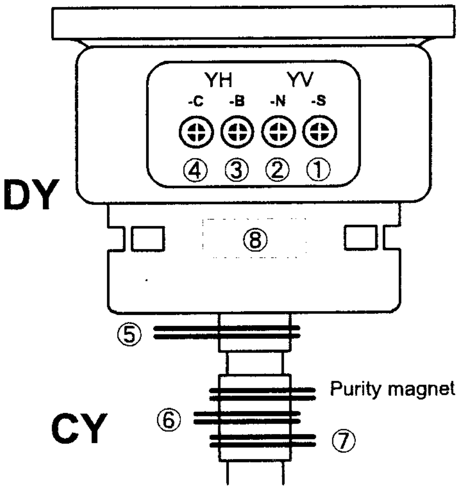
2. Adjustment Location for Purity and Convergence

① Differential VR YV-S

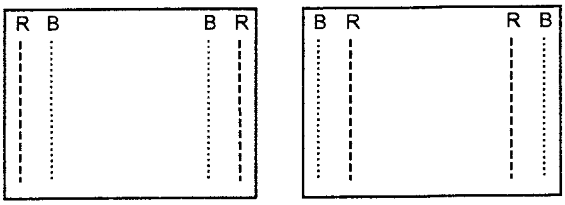


② Differential VR YV-N

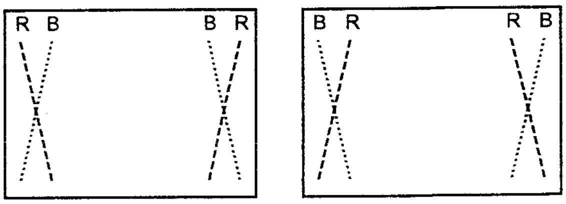



YH
YV
-C
-B
-N
-S
④ ③ ② ①
DY
⑧
⑤
Purity magnet
CY
⑥
⑦

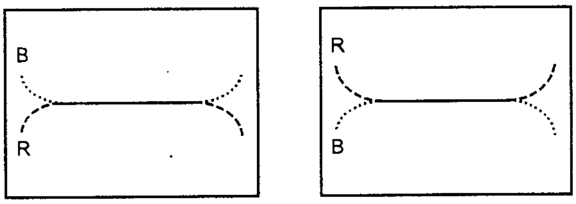
③ Differential VR YH-B



④ Differential VR YH-C



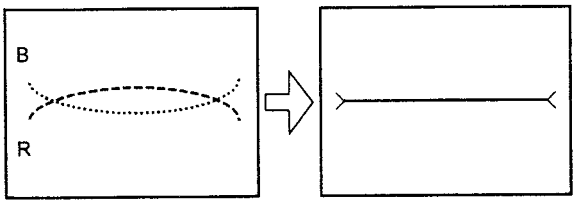
⑤ Four-pole magnet B



Beams are twisted lefthand

Beams are twisted righthand

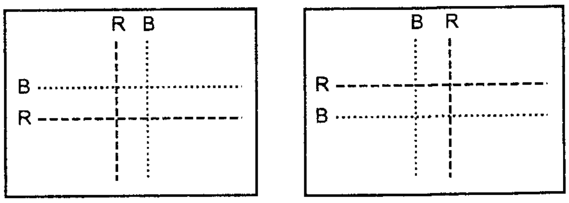
For example lefthand



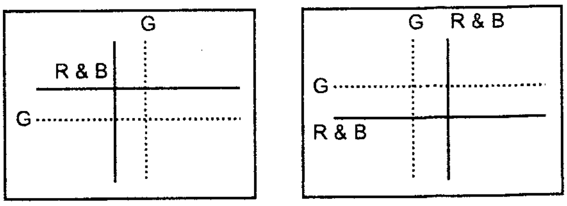
With four-pole magnet B⑤

With four-pole magnet A⑥

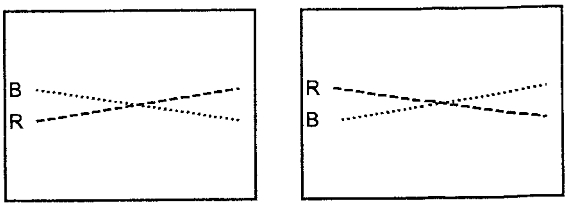
⑥ Four-pole magnet A



⑦ Six-pole magnet

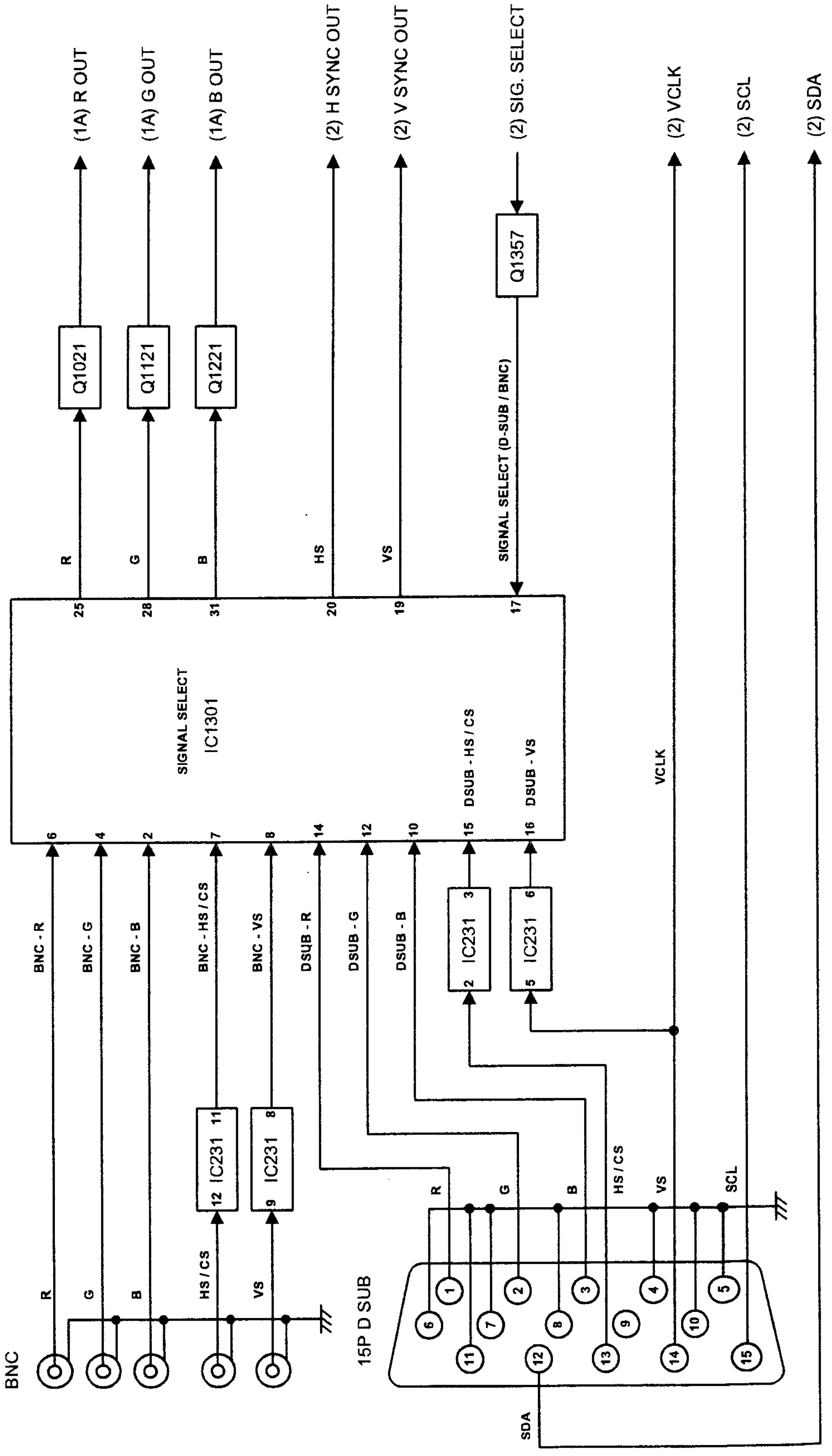

G
R & B
G
G
R & B
G
R & B

⑧ Differential Coil

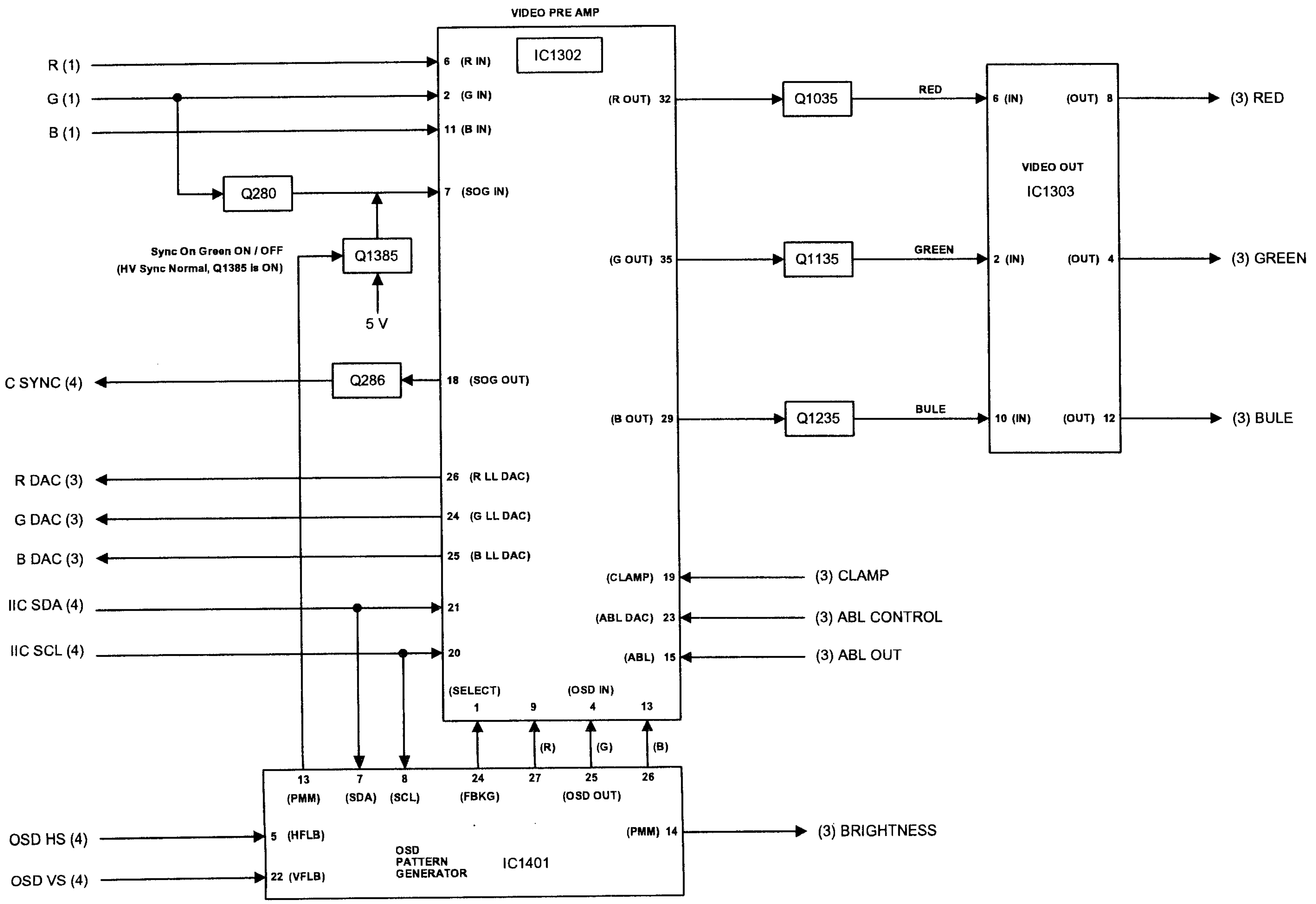


BLOCK DIAGRAM

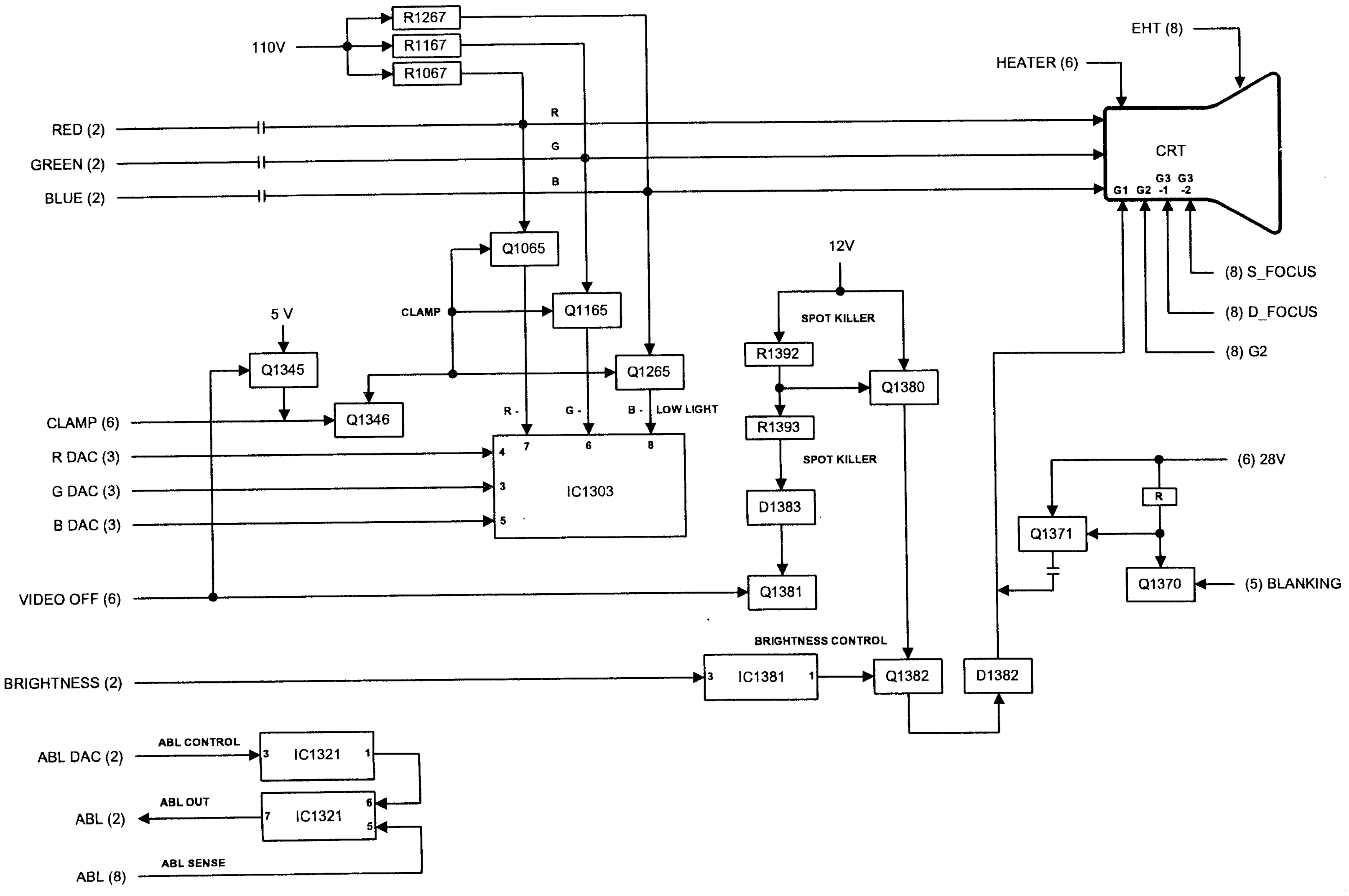
SHEET (1) / VIDEO AMP for HV10H


(1A) R OUT
(1A) G OUT
(1A) B OUT
(2) H SYNC OUT
(2) V SYNC OUT
(2) SIG. SELECT
(2) VCLK
(2) SCL
(2) SDA
Q1021
Q1121
Q1221
Q1357
R
G
B
HS
VS
SIGNAL SELECT (D-SUB / BNC)
25
28
31
20
19
17
SIGNAL SELECT
IC1301
DSUB - HS / CS
DSUB - VS
VCLK
6
4
2
7
8
14
12
10
15
16
BNC - R
BNC - G
BNC - B
BNC - HS / CS
BNC - VS
DSUB - R
DSUB - G
DSUB - B
IC231
3
2
IC231
6
5
IC231
11
12
IC231
8
9
R
G
B
HS / CS
VS
BNC
R
G
B
HS / CS
VS
SCL
15P D SUB
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
SDA

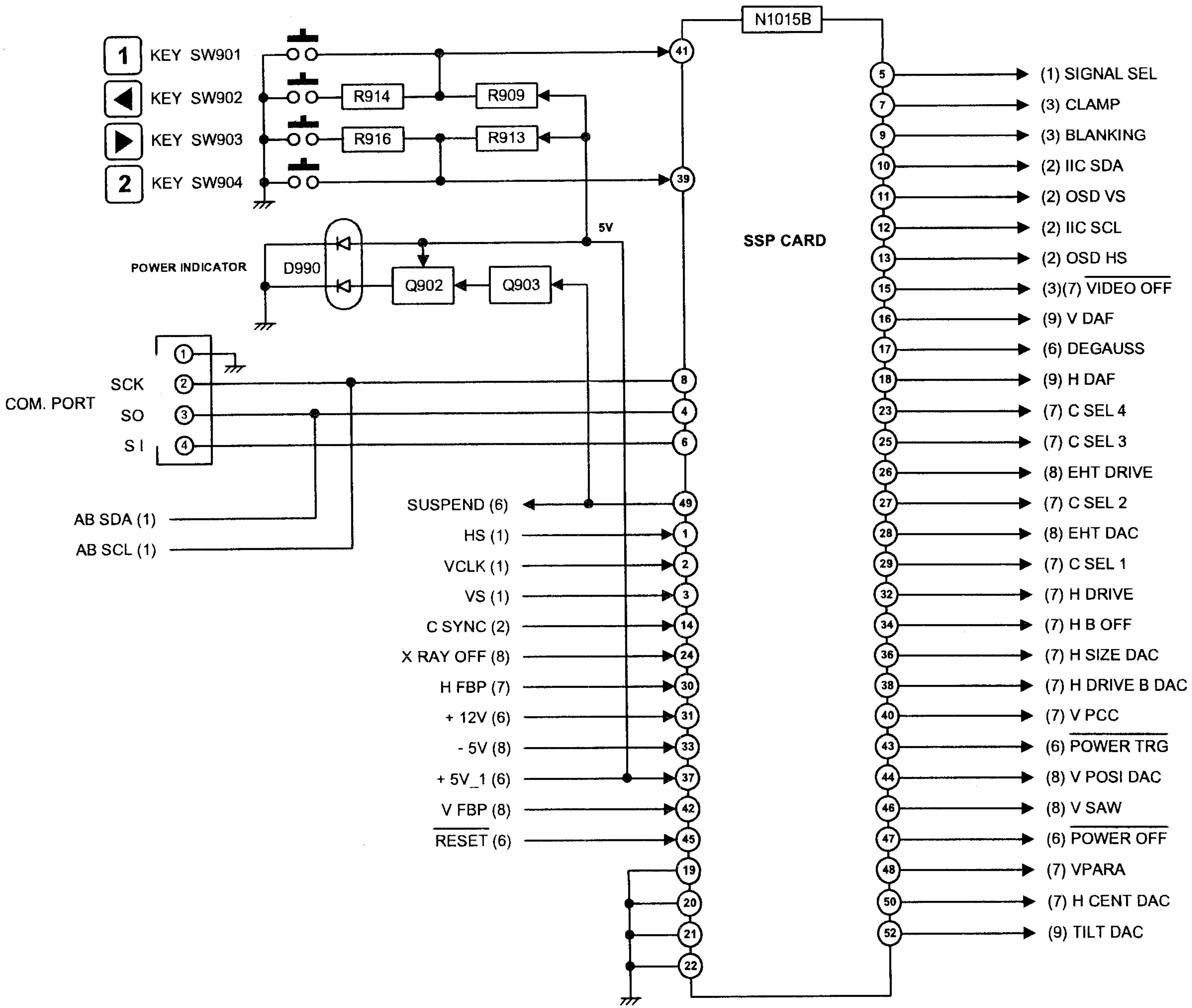
SHEET (2) / VIDEO OUT for HV10H


VIDEO PRE AMP
IC1302
R (1)
G (1)
B (1)
6 (R IN)
2 (G IN)
11 (B IN)
7 (SOG IN)
Q280
Q1385
Sync On Green ON / OFF
(HV Sync Normal, Q1385 is ON)
5 V
C SYNC (4)
Q286
18 (SOG OUT)
R DAC (3)
G DAC (3)
B DAC (3)
26 (R LL DAC)
24 (G LL DAC)
25 (B LL DAC)
IIC SDA (4)
IIC SCL (4)
21
20
(SELECT)
1
9
(OSD IN)
4
13
(R)
(G)
(B)
(R OUT) 32
(G OUT) 35
(B OUT) 29
(CLAMP) 19
(ABL DAC) 23
(ABL) 15
(3) CLAMP
(3) ABL CONTROL
(3) ABL OUT
Q1035
Q1135
Q1235
RED
GREEN
BULE
VIDEO OUT
IC1303
6 (IN)
(OUT) 8
2 (IN)
(OUT) 4
10 (IN)
(OUT) 12
(3) RED
(3) GREEN
(3) BULE
13 (PMM)
7 (SDA)
8 (SCL)
24 (FBKG)
27
25 (OSD OUT)
26
(PMM) 14
(3) BRIGHTNESS
OSD HS (4)
OSD VS (4)
5 (HFLB)
22 (VFLB)
OSD PATTERN GENERATOR
IC1401

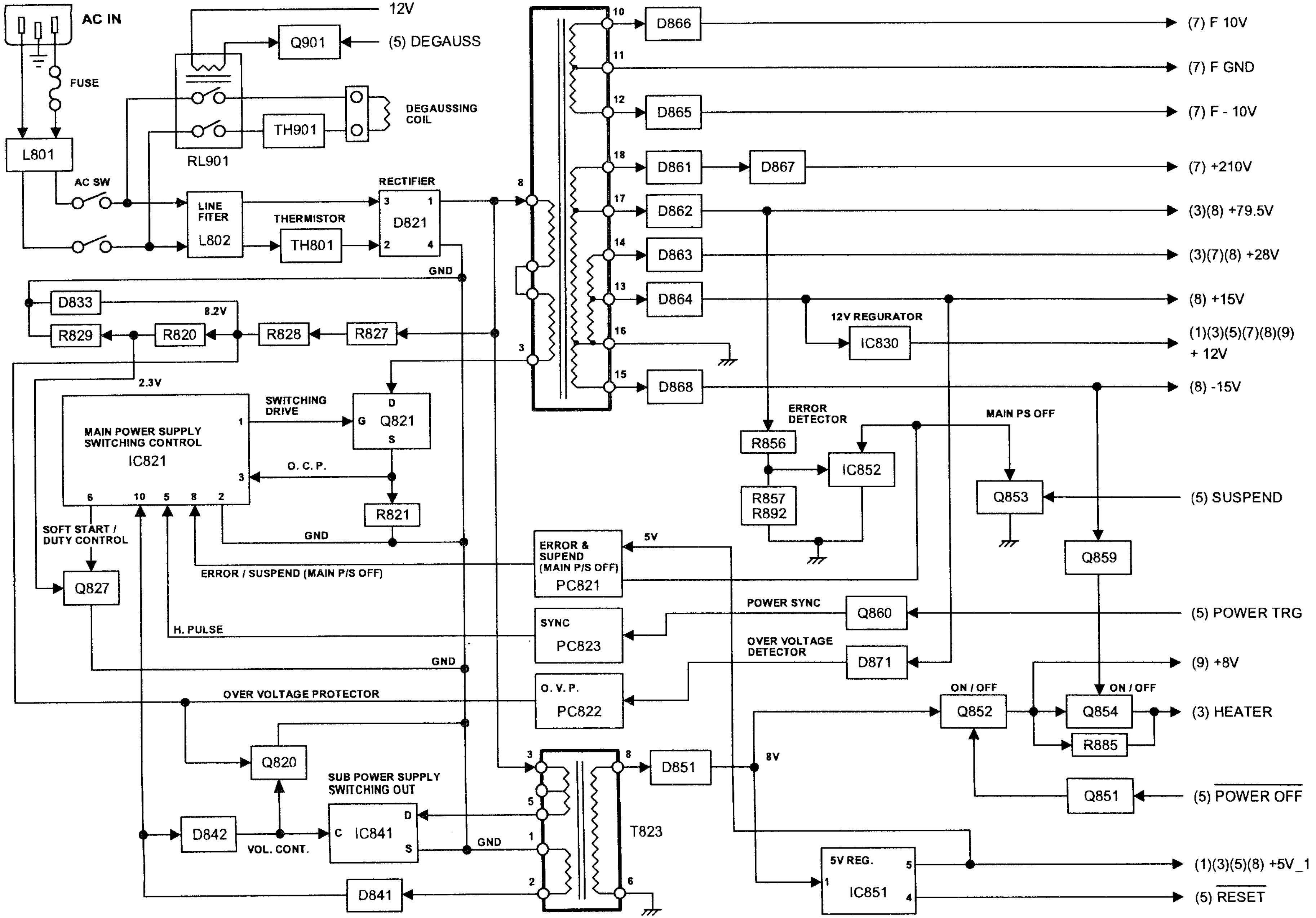
SHEET (3) / VIDEO OUT for HV10H


R1267
R1167
R1067
110V
EHT (8)
HEATER (6)
RED (2)
GREEN (2)
BLUE (2)
R
G
B
CRT
G1
G2
G3 -1
G3 -2
Q1065
12V
(8) S_FOCUS
5 V
CLAMP
Q1165
SPOT KILLER
(8) D_FOCUS
R1392
(8) G2
Q1345
Q1265
Q1380
Q1346
R -
G -
B -
LOW LIGHT
CLAMP (6)
R1393
7
6
8
4
3
5
R DAC (3)
SPOT KILLER
(6) 28V
IC1303
R
G DAC (3)
D1383
Q1371
B DAC (3)
Q1370
(5) BLANKING
Q1381
VIDEO OFF (6)
BRIGHTNESS CONTROL
BRIGHTNESS (2)
IC1381
3
1
Q1382
D1382
ABL CONTROL
ABL DAC (2)
IC1321
3
1
ABL OUT
6
ABL (2)
IC1321
7
5
ABL SENSE
ABL (8)

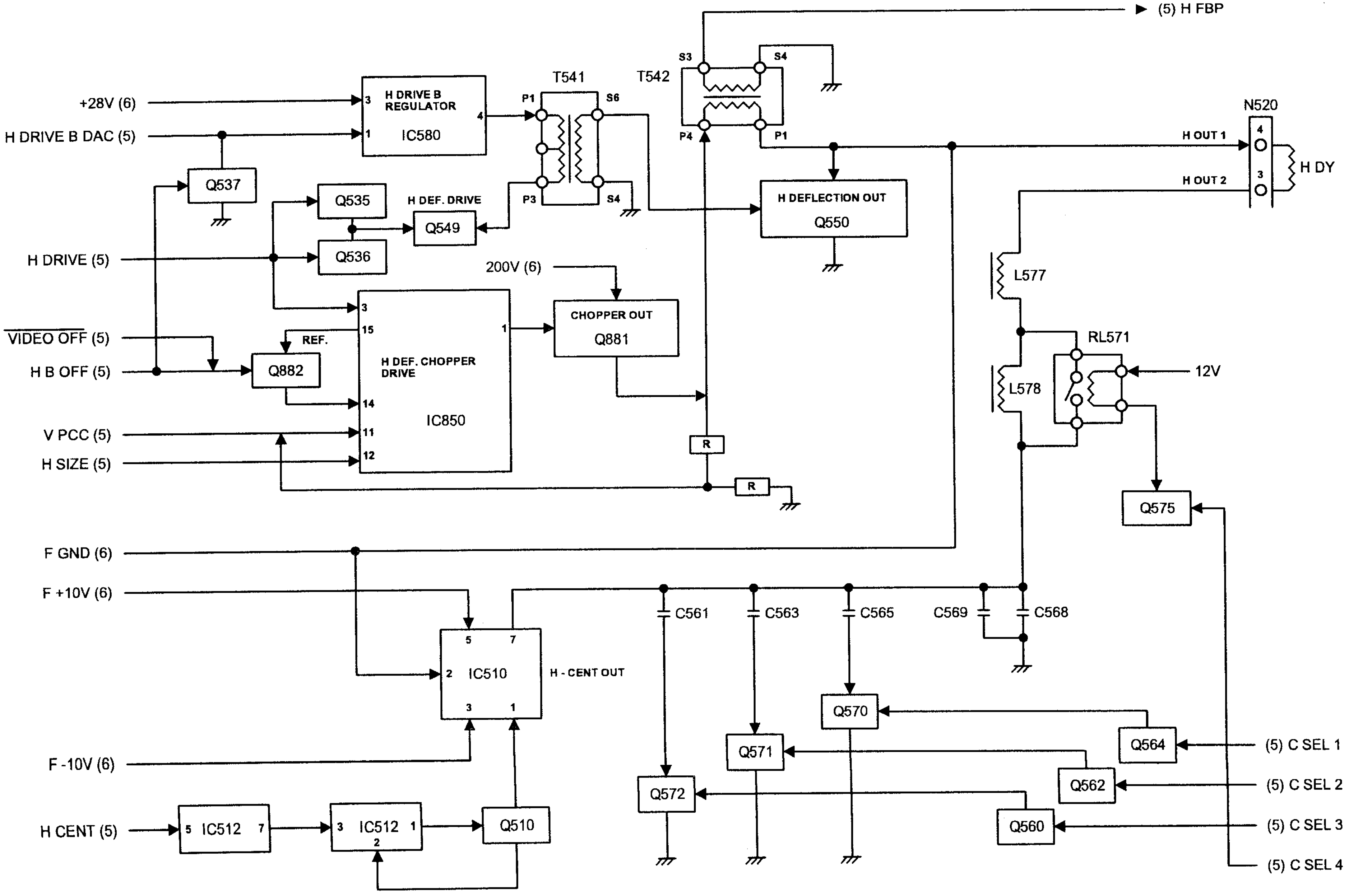
SHEET (4)(5) / SSP CARD for HV10H


N1015B
SSP CARD
1 KEY SW901
◀ KEY SW902
▶ KEY SW903
2 KEY SW904
R914
R909
R916
R913
5V
POWER INDICATOR
D990
Q902
Q903
COM. PORT
SCK
SO
S I
①
②
③
④
AB SDA (1)
AB SCL (1)
SUSPEND (6)
HS (1)
VCLK (1)
VS (1)
C SYNC (2)
X RAY OFF (8)
H FBP (7)
+ 12V (6)
- 5V (8)
+ 5V_1 (6)
V FBP (8)
RESET (6)
41
39
8
4
6
49
1
2
3
14
24
30
31
33
37
42
45
19
20
21
22
5
7
9
10
11
12
13
15
16
17
18
23
25
26
27
28
29
32
34
36
38
40
43
44
46
47
48
50
52
(1) SIGNAL SEL
(3) CLAMP
(3) BLANKING
(2) IIC SDA
(2) OSD VS
(2) IIC SCL
(2) OSD HS
(3)(7) VIDEO OFF
(9) V DAF
(6) DEGAUSS
(9) H DAF
(7) C SEL 4
(7) C SEL 3
(8) EHT DRIVE
(7) C SEL 2
(8) EHT DAC
(7) C SEL 1
(7) H DRIVE
(7) H B OFF
(7) H SIZE DAC
(7) H DRIVE B DAC
(7) V PCC
(6) POWER TRG
(8) V POSI DAC
(8) V SAW
(6) POWER OFF
(7) VPARA
(7) H CENT DAC
(9) TILT DAC

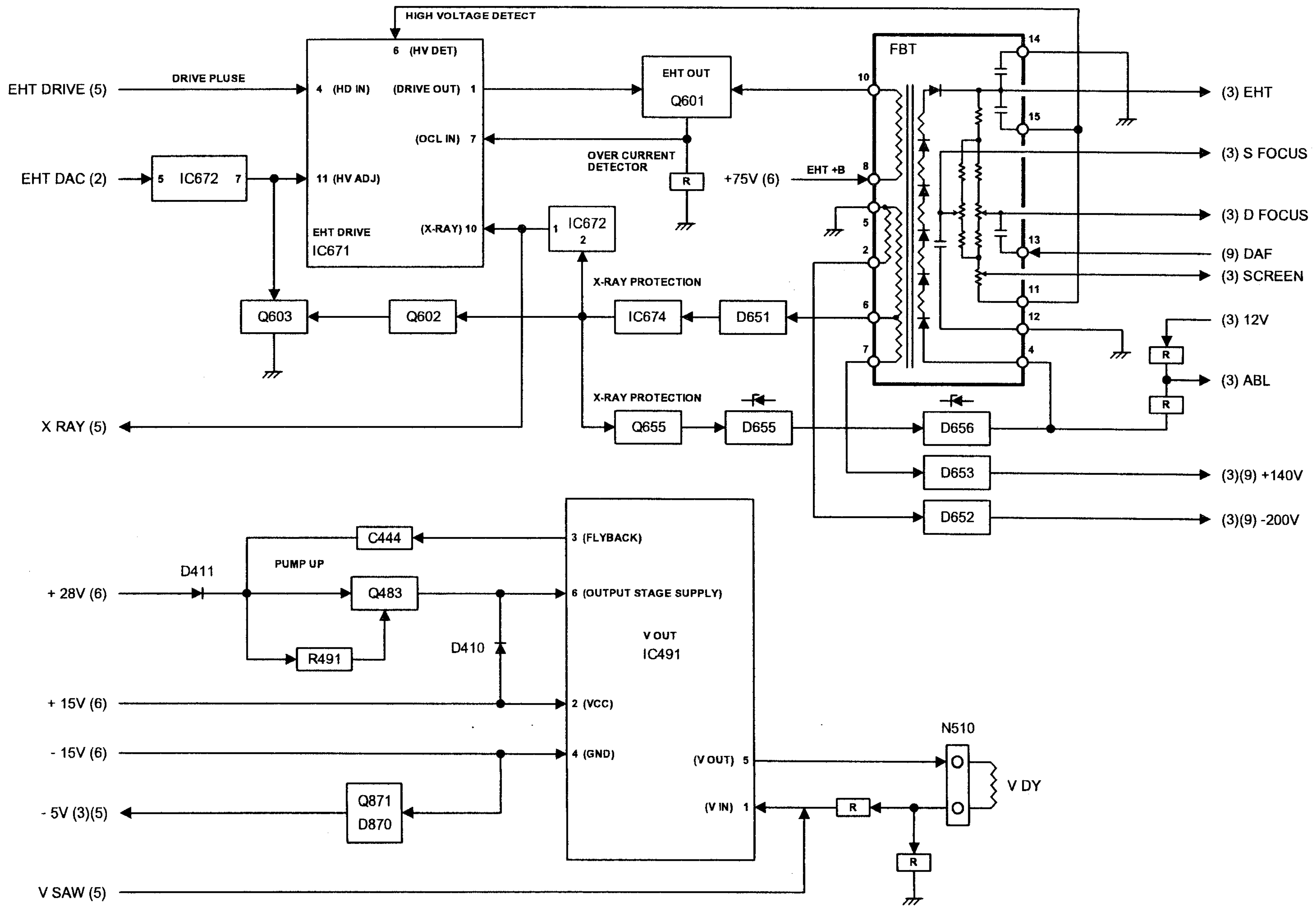
SHEET (6) / POWER SUPPLY for HV10H


AC IN
FUSE
L801
AC SW
12V
Q901
(5) DEGAUSS
RL901
DEGAUSSING COIL
TH901
LINE FITER
L802
THERMISTOR
TH801
RECTIFIER
D821
GND
D833
R829
8.2V
R820
R828
R827
2.3V
MAIN POWER SUPPLY SWITCHING CONTROL
IC821
SWITCHING DRIVE
Q821
O. C. P.
R821
SOFT START / DUTY CONTROL
Q827
ERROR / SUSPEND (MAIN P/S OFF)
H. PULSE
OVER VOLTAGE PROTECTOR
Q820
D842
VOL. CONT.
SUB POWER SUPPLY SWITCHING OUT
IC841
D841
ERROR & SUPEND (MAIN P/S OFF)
PC821
SYNC
PC823
O. V. P.
PC822
5V
T823
D851
8V
D866
D865
D861
D867
D862
D863
D864
D868
12V REGURATOR
IC830
ERROR DETECTOR
R856
R857
R892
IC852
MAIN PS OFF
Q853
Q859
POWER SYNC
Q860
OVER VOLTAGE DETECTOR
D871
ON / OFF
Q852
Q854
R885
Q851
5V REG.
IC851
(7) F 10V
(7) F GND
(7) F - 10V
(7) +210V
(3)(8) +79.5V
(3)(7)(8) +28V
(8) +15V
(1)(3)(5)(7)(8)(9) + 12V
(8) -15V
(5) SUSPEND
(5) POWER TRG
(9) +8V
(3) HEATER
(5) POWER OFF
(1)(3)(5)(8) +5V_1
(5) RESET

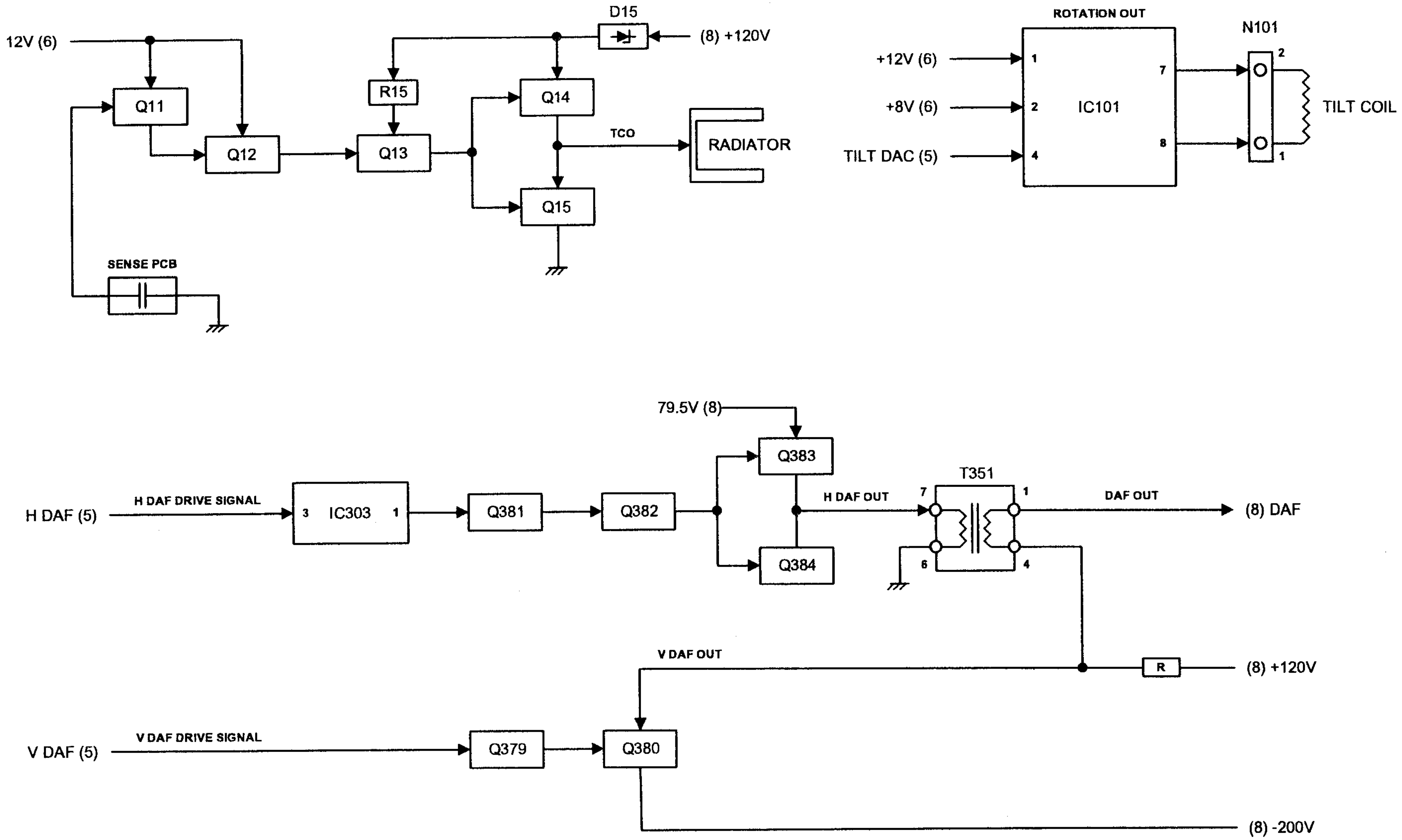
SHEET (7) / HORIZONTAL DEFLECTION for HV10H


(5) H FBP
+28V (6)
H DRIVE B DAC (5)
H DRIVE B REGULATOR
IC580
3
1
4
Q537
T541
P1
S6
P3
S4
T542
S3
S4
P4
P1
Q535
Q536
H DEF. DRIVE
Q549
H DRIVE (5)
200V (6)
CHOPPER OUT
Q881
H DEFLECTION OUT
Q550
N520
H OUT 1
H OUT 2
4
3
H DY
L577
L578
RL571
12V
Q575
VIDEO OFF (5)
H B OFF (5)
V PCC (5)
H SIZE (5)
REF.
Q882
H DEF. CHOPPER DRIVE
IC850
3
15
14
11
12
1
R
R
F GND (6)
F +10V (6)
F -10V (6)
H CENT (5)
IC510
5
7
2
3
1
H - CENT OUT
IC512
5
7
IC512
3
1
2
Q510
C561
C563
C565
C569
C568
Q570
Q571
Q572
Q564
Q562
Q560
(5) C SEL 1
(5) C SEL 2
(5) C SEL 3
(5) C SEL 4

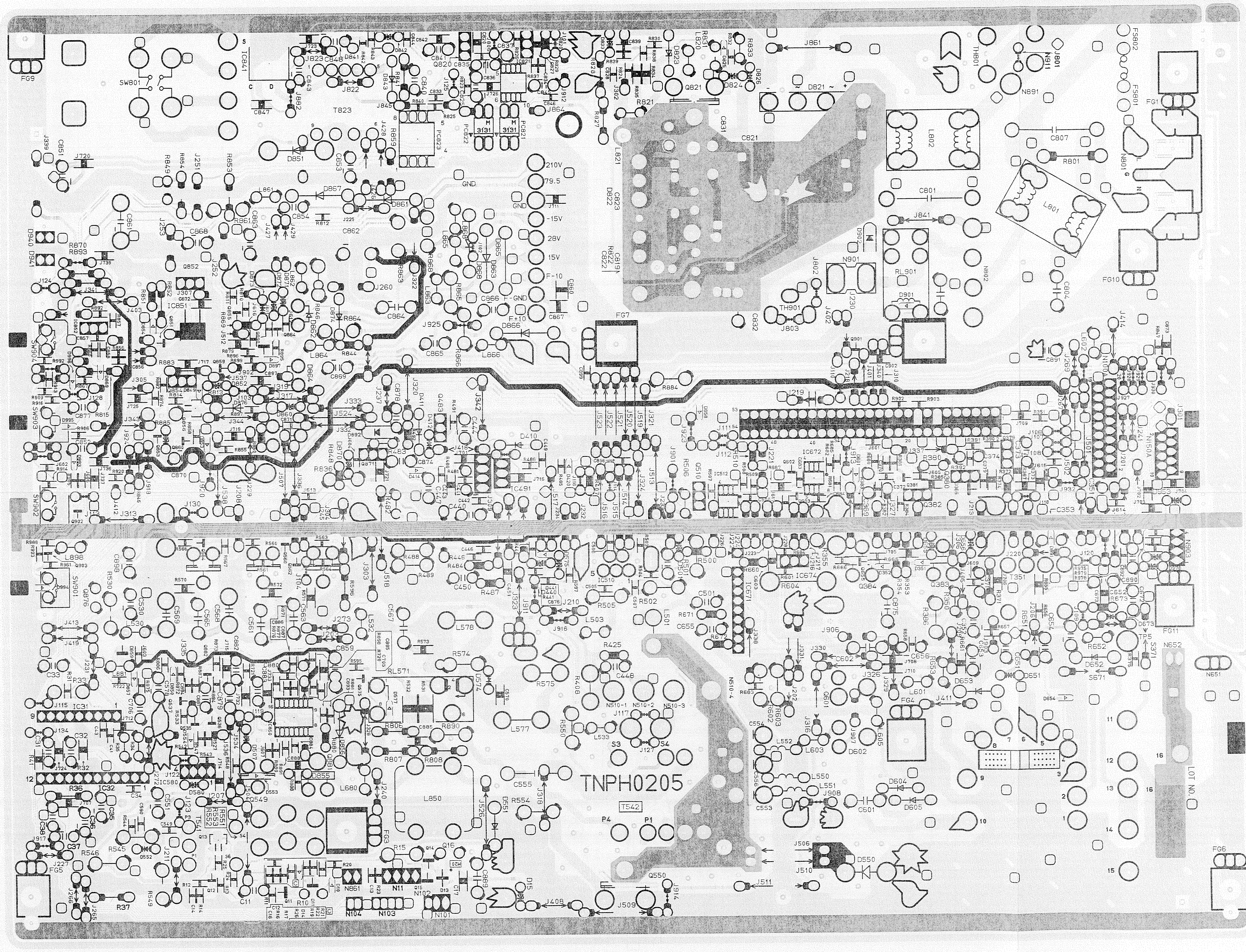
SHEET (8) / EHT OUT for HV10H


HIGH VOLTAGE DETECT
EHT DRIVE (5)
DRIVE PLUSE
EHT DAC (2)
5 IC672 7
6 (HV DET)
4 (HD IN)
(DRIVE OUT) 1
(OCL IN) 7
11 (HV ADJ)
EHT DRIVE
IC671
(X-RAY) 10
EHT OUT
Q601
OVER CURRENT DETECTOR
R
+75V (6)
EHT +B
1 IC672 2
X-RAY PROTECTION
Q603
Q602
IC674
D651
X RAY (5)
X-RAY PROTECTION
Q655
D655
FBT
14
10
15
8
5
2
13
6
11
12
7
4
(3) EHT
(3) S FOCUS
(3) D FOCUS
(9) DAF
(3) SCREEN
(3) 12V
R
(3) ABL
R
D656
D653
D652
(3)(9) +140V
(3)(9) -200V
C444
3 (FLYBACK)
PUMP UP
D411
+ 28V (6)
Q483
6 (OUTPUT STAGE SUPPLY)
R491
D410
V OUT
IC491
+ 15V (6)
2 (VCC)
- 15V (6)
4 (GND)
(V OUT) 5
N510
V DY
- 5V (3)(5)
Q871
D870
(V IN) 1
R
R
V SAW (5)

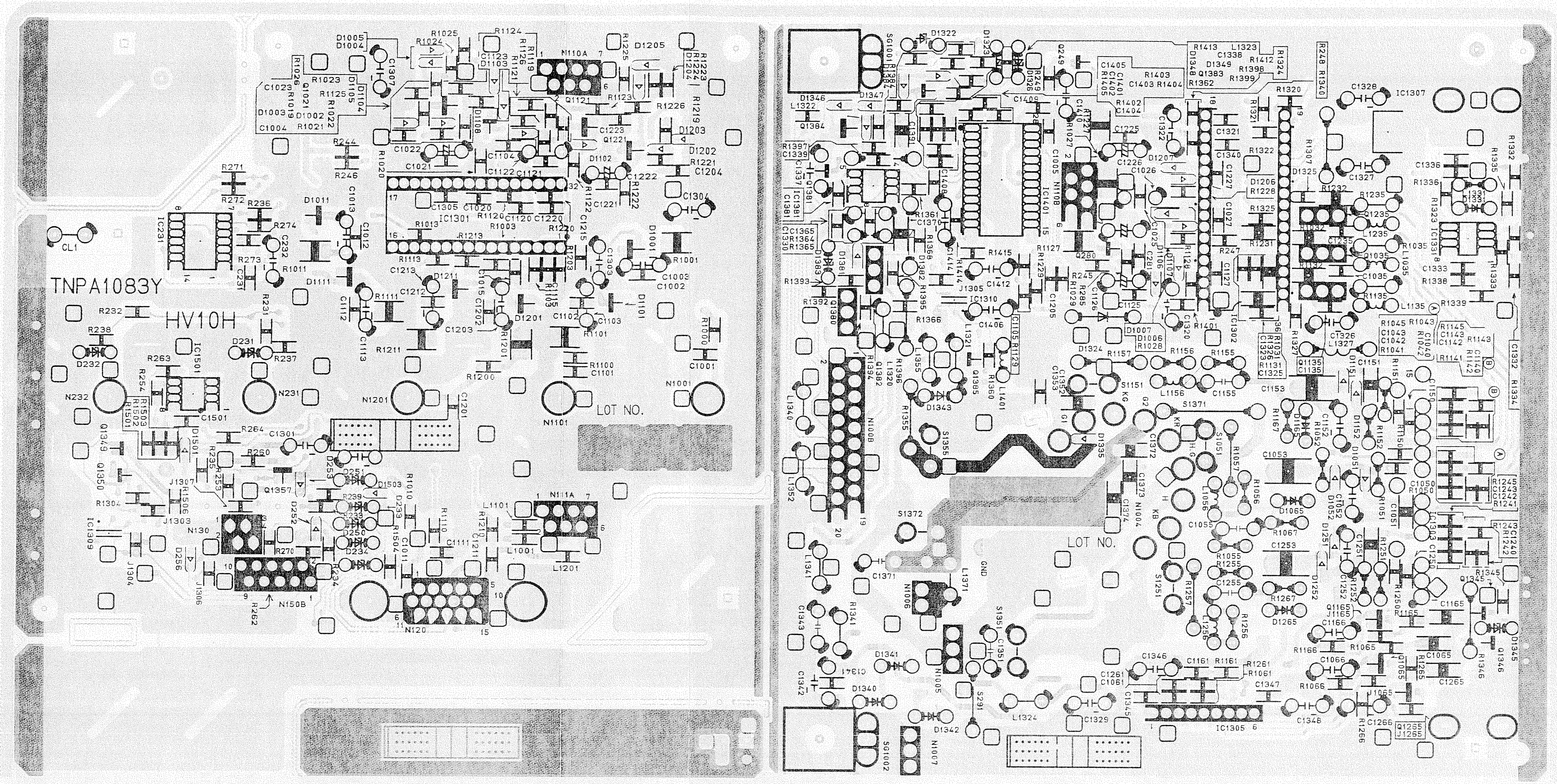
SHEET (9) DAF OUT / TILT CONTROL / TCO for HV10H


12V (6)
Q11
Q12
SENSE PCB
R15
Q13
D15
(8) +120V
Q14
TCO
Q15
RADIATOR
ROTATION OUT
+12V (6)
+8V (6)
TILT DAC (5)
1
2
4
IC101
7
8
N101
2
1
TILT COIL
79.5V (8)
H DAF (5)
H DAF DRIVE SIGNAL
3
IC303
1
Q381
Q382
Q383
Q384
H DAF OUT
T351
7
1
6
4
DAF OUT
(8) DAF
V DAF OUT
R
(8) +120V
V DAF (5)
V DAF DRIVE SIGNAL
Q379
Q380
(8) -200V

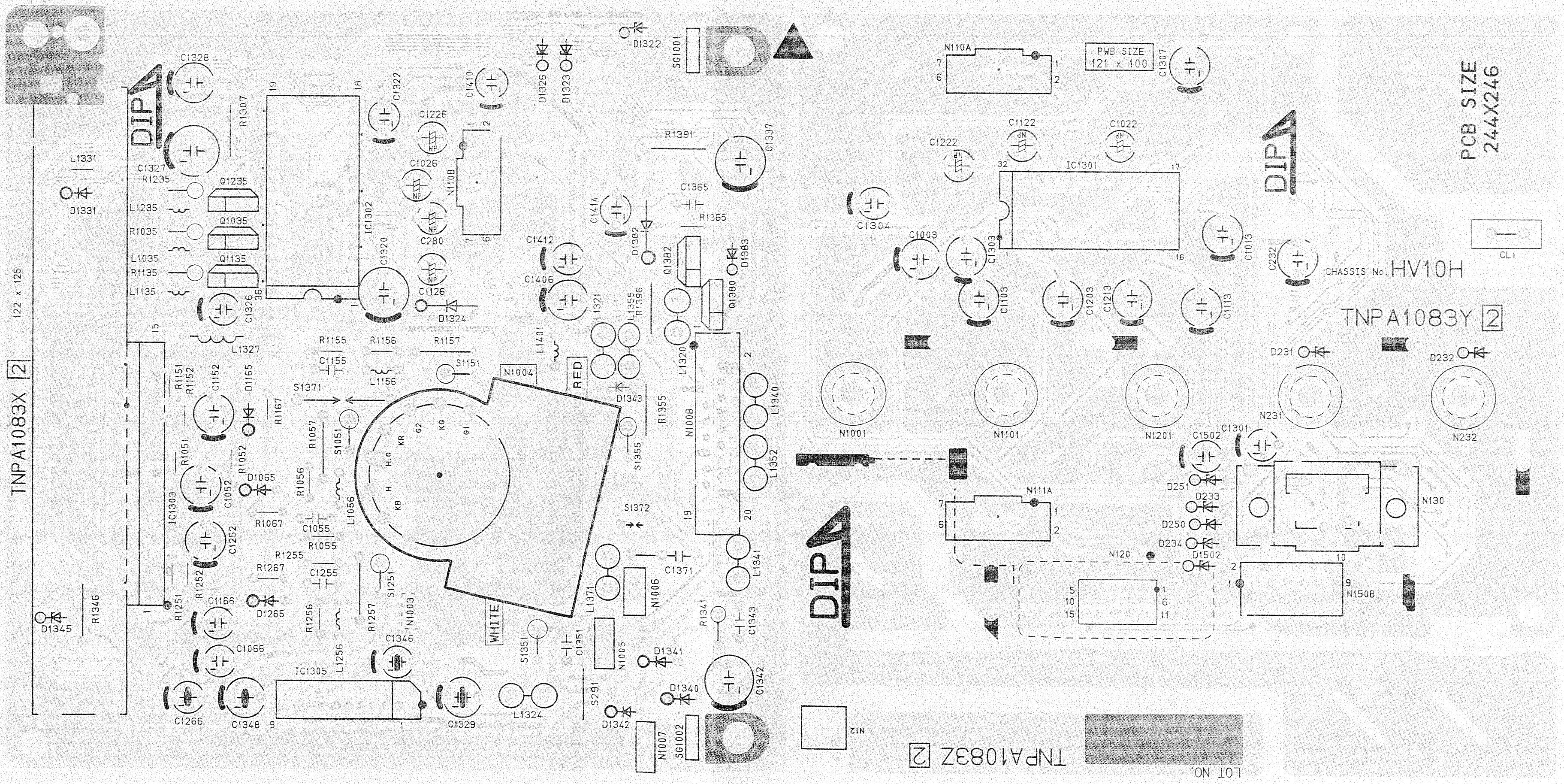
MAIN BOARD (Solder side)


TNPH0205
LOT NO.
FG1
FG3
FG4
FG5
FG6
FG7
FG9
FG10
FG11
SW801
T823
210V
79.5
GND
-15V
28V
15V
F-10
F+10
IC31
IC32

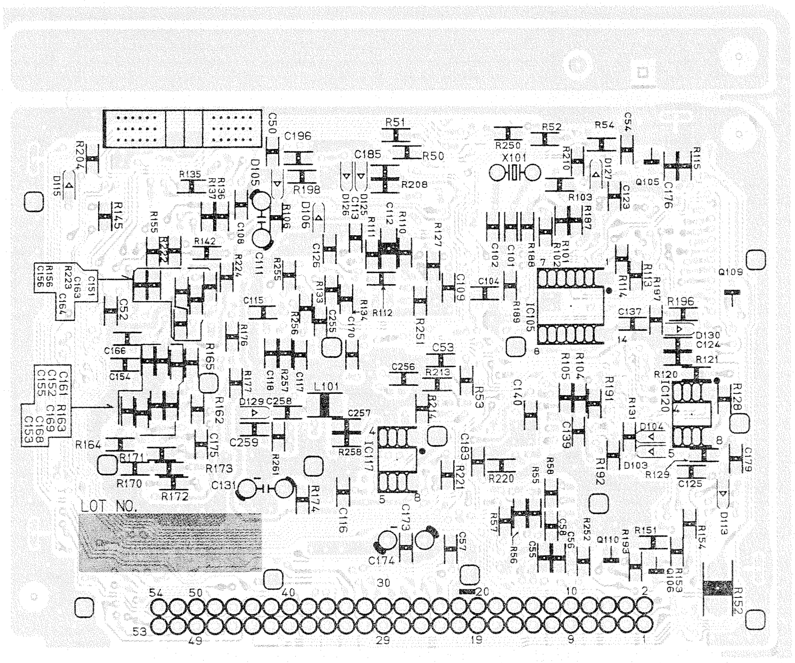
Video / I/F BOARD (Solder side)


TNPA1083Y
HV10H
LOT NO.
LOT NO.

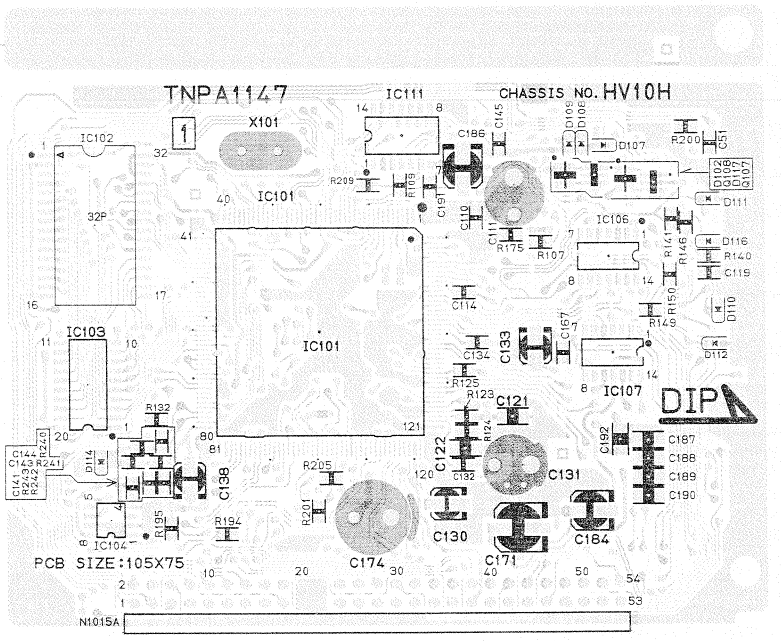
Video / I/F BOARD (Parts side)


TNPA1083X 2
122 x 125
DIP
WHITE
RED
PWB SIZE
121 x 100
DIP
PCB SIZE
244X246
CHASSIS No. HV10H
TNPA1083Y 2
DIP
TNPA1083Z 2
LOT NO.

SSP BOARD (Solder side)


LOT NO.
IC105
IC117
IC120
X101
L101
Q105
Q109
Q110
Q106
R204
D115
R145
C52
C50
C196
R51
R52
R54
R250
C185
R50
R208
R196
C137
D130
C124
R121
R120
R128
D104
D103
R129
C125
C179
D113
R152
R164
R171
R170
R172
R173
C131
C175
C259
R174
C116
C174
C173
C57
R220
C53
C256
R213
R53
R192
R151
C55
54
50
40
30
20
10
2
53
49
29
19
9
1

SSP BOARD (Parts side)


TNPA1147
IC111
CHASSIS NO. HV10H
X101
IC102
IC101
IC103
IC104
IC106
IC107
DIP
R209
C186
C145
D107
R200
C151
D102
D108
D117
Q107
D111
R175
R107
D116
R140
C119
D110
R149
D112
C114
C134
C133
C167
R125
R123
C121
R132
C187
C188
C189
C190
C192
C122
C132
C131
R205
C138
D114
R201
R194
R195
C130
C174
C171
C184
PCB SIZE:105X75
N1015A
1
2
10
20
30
40
50
53
54
32
41
80
81
120
121

SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE

The component identified by shading or international symbol ⚠ on the following schematic diagrams incorporate special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for those critical components.

NOTES :

1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted by the following marks.
Unit of resistance is ohm (Ω), (K = 1,000, M = 1,000,000)

○ : Non Flammable
☒ : Metal Oxide
□ : Wire Wound
⊗ : Fusible
⧄ : Flame Proof Rectangular

△ : Solid
◎ : Metal (Precision and high stability)
─■─ : Thermistor
─□─ : Positive coefficient Thermistor

2. CAPACITOR

All capacitors are ceramic 50V capacitor, unless otherwise noted by the following marks.
Unit of capacitance is μF, unless otherwise noted.

+‖- : Electrolytic
Ⓣ : Tantalum
NP : Bipolar
Ⓢ : Polystyrene
⊗ : Temperature Compensation

Ⓜ : Polyester
ⓜ : Metalized Polyester
☒ : Polypropylene
△ : Mica
○ : Ceramic
◎ : Ceramic (SL)

3. COIL

Unit of inductance is μH, unless otherwise noted.

4. VOLTAGE MEASUREMENT

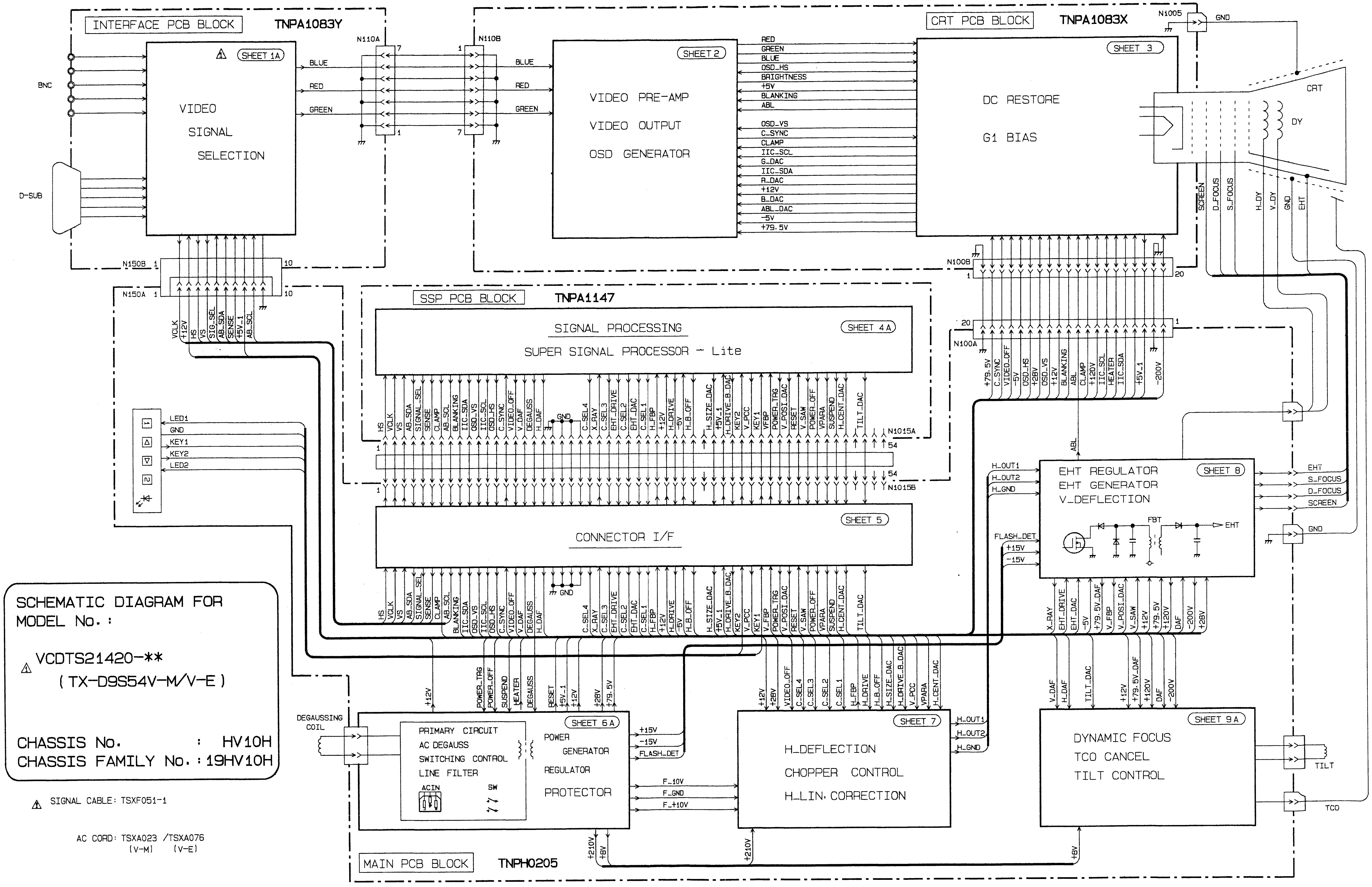
Voltage is measured by a digital meter receiving normal signal.

5. This schematic diagram is the letest at the time of printing and is subject to change without notice.

SERVICE NOTES :

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.


INTERFACE PCB BLOCK
TNPA1083Y
SHEET 1A
VIDEO SIGNAL SELECTION
BNC
D-SUB
BLUE
RED
GREEN
N110A
N110B
N150B
N150A
VCLK
+12V
HS
VS
SIG_SEL
AB_SDA
SENSE
+5V_1
AB_SCL
LED1
GND
KEY1
KEY2
LED2
SHEET 2
VIDEO PRE-AMP
VIDEO OUTPUT
OSD GENERATOR
RED
GREEN
BLUE
OSD_HS
BRIGHTNESS
+5V
BLANKING
ABL
OSD_VS
C_SYNC
CLAMP
IIC_SCL
G_DAC
IIC_SDA
R_DAC
+12V
B_DAC
ABL_DAC
-5V
+79.5V
CRT PCB BLOCK
TNPA1083X
SHEET 3
DC RESTORE
G1 BIAS
N1005
GND
CRT
DY
SCREEN
D_FOCUS
S_FOCUS
H_DY
V_DY
GND
EHT
N100B
N100A
+79.5V
C_SYNC
VIDEO_OFF
-5V
OSD_HS
+28V
OSD_VS
+12V
BLANKING
ABL
CLAMP
+120V
IIC_SCL
HEATER
IIC_SDA
+5V_1
-200V
SSP PCB BLOCK
TNPA1147
SIGNAL PROCESSING
SUPER SIGNAL PROCESSOR – Lite
SHEET 4A
HS
VCLK
VS
AB_SDA
SIGNAL_SEL
SENSE
CLAMP
AB_SCL
BLANKING
IIC_SDA
OSD_VS
IIC_SCL
OSD_HS
C_SYNC
VIDEO_OFF
V_DAF
DEGAUSS
H_DAF
GND
C_SEL4
X_RAY
C_SEL3
EHT_DRIVE
C_SEL2
EHT_DAC
C_SEL1
H_FBP
+12V
H_DRIVE
+5V
H_B_OFF
H_SIZE_DAC
+5V_1
H_DRIVE_B_DAC
KEY2
V_PCC
KEY1
VFBP
POWER_TRG
V_POSI_DAC
RESET
V_SAW
POWER_OFF
VPARA
SUSPEND
H_CENT_DAC
TILT_DAC
N1015A
N1015B
1
54
SHEET 5
CONNECTOR I/F
EHT REGULATOR
EHT GENERATOR
V_DEFLECTION
SHEET 8
H_OUT1
H_OUT2
H_GND
FLASH_DET
+15V
-15V
FBT
EHT
S_FOCUS
D_FOCUS
SCREEN
GND
X_RAY
EHT_DRIVE
EHT_DAC
-5V
+79.5V_DAF
V_FBP
V_POSI_DAC
V_SAW
+12V
+79.5V
+120V
DAF
-200V
+28V
DEGAUSSING COIL
PRIMARY CIRCUIT
AC DEGAUSS
SWITCHING CONTROL
LINE FILTER
ACIN
SW
SHEET 6A
POWER
GENERATOR
REGULATOR
PROTECTOR
+15V
-15V
FLASH_DET
F_10V
F_GND
F_+10V
+12V
POWER_TRG
POWER_OFF
SUSPEND
HEATER
DEGAUSS
RESET
+5V_1
+12V
+28V
+79.5V
+210V
+8V
SHEET 7
H_DEFLECTION
CHOPPER CONTROL
H_LIN. CORRECTION
H_OUT1
H_OUT2
H_GND
+12V
+28V
VIDEO_OFF
C_SEL4
C_SEL3
C_SEL2
C_SEL1
H_FBP
H_DRIVE
H_B_OFF
H_SIZE_DAC
H_DRIVE_B_DAC
V_PCC
VPARA
H_CENT_DAC
SHEET 9A
DYNAMIC FOCUS
TCO CANCEL
TILT CONTROL
V_DAF
H_DAF
TILT_DAC
+12V
+79.5V_DAF
+120V
DAF
-200V
TILT
TCO
MAIN PCB BLOCK
TNPH0205

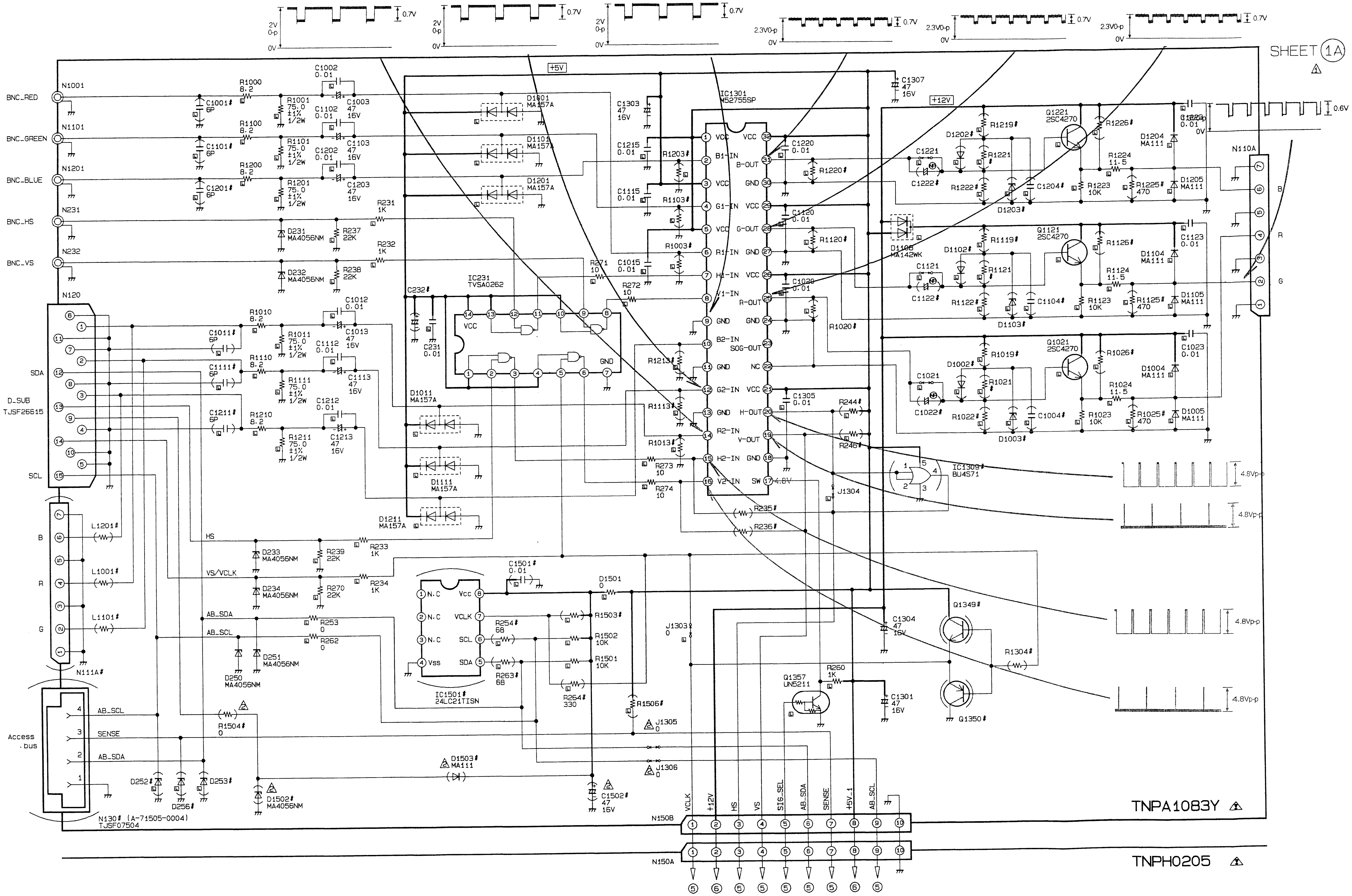
SCHEMATIC DIAGRAM FOR
MODEL No. :

⚠ VCDTS21420-**
(TX-D9S54V-M/V-E)

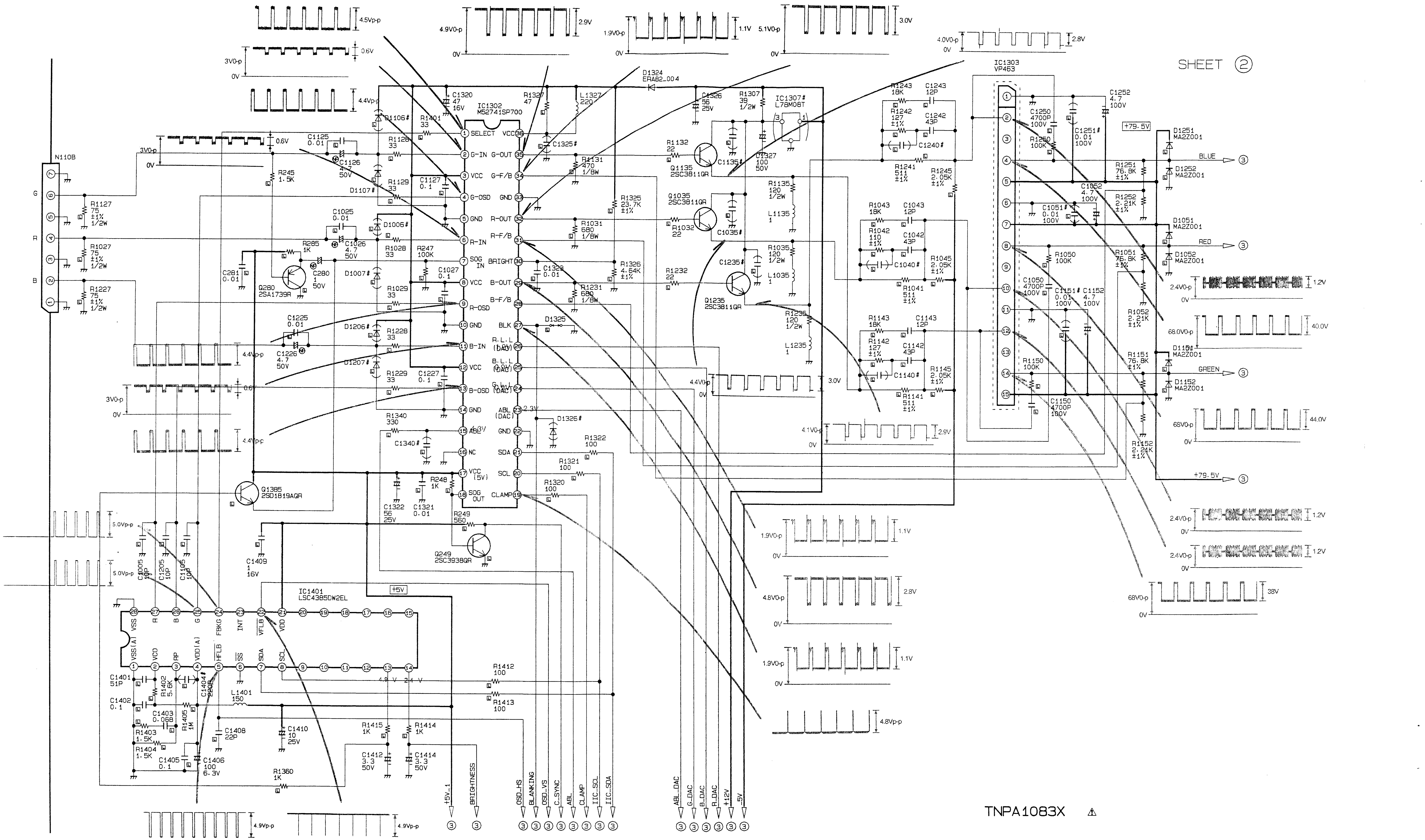
CHASSIS No. : HV10H
CHASSIS FAMILY No. : 19HV10H

⚠ SIGNAL CABLE: TSXF051-1

AC CORD: TSXA023 /TSXA076
(V-M) (V-E)

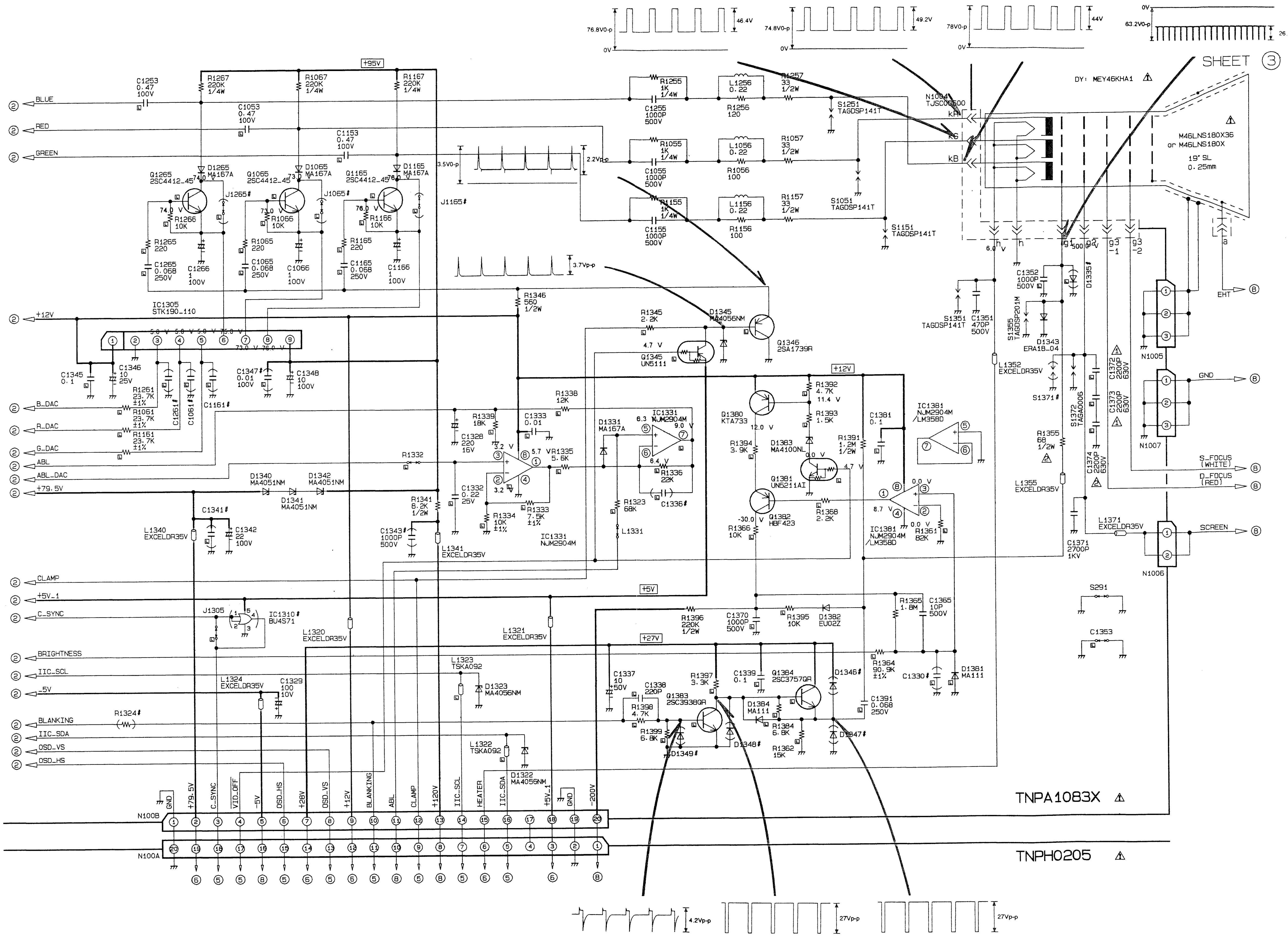

SHEET 1A
BNC_RED
BNC_GREEN
BNC_BLUE
BNC_HS
BNC_VS
N1001
N1101
N1201
N231
N232
N120
D_SUB
TJSF26615
SDA
SCL
Access bus
AB_SCL
SENSE
AB_SDA
N130# (A-71505-0004)
TJSF07504
N111A#
L1201#
L1001#
L1101#
B
R
G
R1000 8.2
R1001 75.0 ±1% 1/2W
R1100 8.2
R1101 75.0 ±1% 1/2W
R1200 8.2
R1201 75.0 ±1% 1/2W
C1001# 6P
C1101# 6P
C1201# 6P
C1002 0.01
C1003 47 16V
C1102 0.01
C1103 47 16V
C1202 0.01
C1203 47 16V
R231 1K
R232 1K
D231 MA4056NM
D232 MA4056NM
R237 22K
R238 22K
R1010 8.2
R1011 75.0 ±1% 1/2W
R1110 8.2
R1111 75.0 ±1% 1/2W
R1210 8.2
R1211 75.0 ±1% 1/2W
C1011# 6P
C1111# 6P
C1211# 6P
C1012 0.01
C1013 47 16V
C1112 0.01
C1113 47 16V
C1212 0.01
C1213 47 16V
D1001 MA157A
D1101 MA157A
D1201 MA157A
D1011 MA157A
D1111 MA157A
D1211 MA157A
+5V
C232#
C231 0.01
IC231 TVSA0262
VCC
GND
R271 10
R272 10
R273 10
R274 10
C1015 0.01
C1115 0.01
C1215 0.01
C1303 47 16V
C1307 47 16V
IC1301 M52755SP
VCC B1-IN VCC G1-IN VCC R1-IN H1-IN V1-IN GND B2-IN GND G2-IN GND R2-IN H2-IN V2-IN
VCC B-OUT GND VCC G-OUT GND VCC R-OUT GND SOG-OUT NC VCC H-OUT V-OUT GND SW
4.8V
R1203#
R1103#
R1003#
R1213#
R1113#
R1013#
C1220 0.01
C1120 0.01
C1020 0.01
R1220#
R1120#
R1020#
C1305 0.01
R244#
R246#
R235#
R236#
J1304
IC1309# BU4S71
+12V
Q1221 2SC4270
Q1121 2SC4270
Q1021 2SC4270
D1202#
D1102#
D1002#
R1219#
R1119#
R1019#
R1221#
R1121#
R1021#
R1222#
R1122#
R1022#
C1221
C1222#
C1121
C1122#
C1021
C1022#
D1203#
D1103#
D1003#
C1204#
C1104#
C1004#
R1223 10K
R1123 10K
R1023 10K
R1224 11.5
R1124 11.5
R1024 11.5
R1225# 470
R1125# 470
R1025# 470
R1226#
R1126#
R1026#
D1204 MA111
D1104 MA111
D1004 MA111
D1205 MA111
D1105 MA111
D1005 MA111
C1223 0.01
C1123 0.01
C1023 0.01
D1106 MA142WK
N110A
0.6V
0V
4.8Vp-p
HS
VS/VCLK
AB_SDA
AB_SCL
R233 1K
R234 1K
D233 MA4056NM
D234 MA4056NM
R239 22K
R270 22K
R253 0
R262 0
D250 MA4056NM
D251 MA4056NM
IC1501# 24LC21TISN
N.C N.C N.C Vss Vcc VCLK SCL SDA
C1501# 0.01
D1501 0
R1503#
R1502 10K
R1501 10K
R254# 68
R263# 68
R264# 330
R1506#
J1303# 0
J1305 0
J1306 0
R1504# 0
D1503# MA111
D1502# MA4056NM
C1502# 47 16V
D252#
D253#
D256#
Q1357 UN5211
R260 1K
C1301 47 16V
C1304 47 16V
Q1349#
Q1350#
R1304#
N150B
N150A
VCLK +12V HS VS SIG_SEL AB_SDA SENSE +5V_1 AB_SCL
TNPA1083Y
TNPH0205
2V 0-p
0.7V
2.3V0-p
0V

SHEET ②

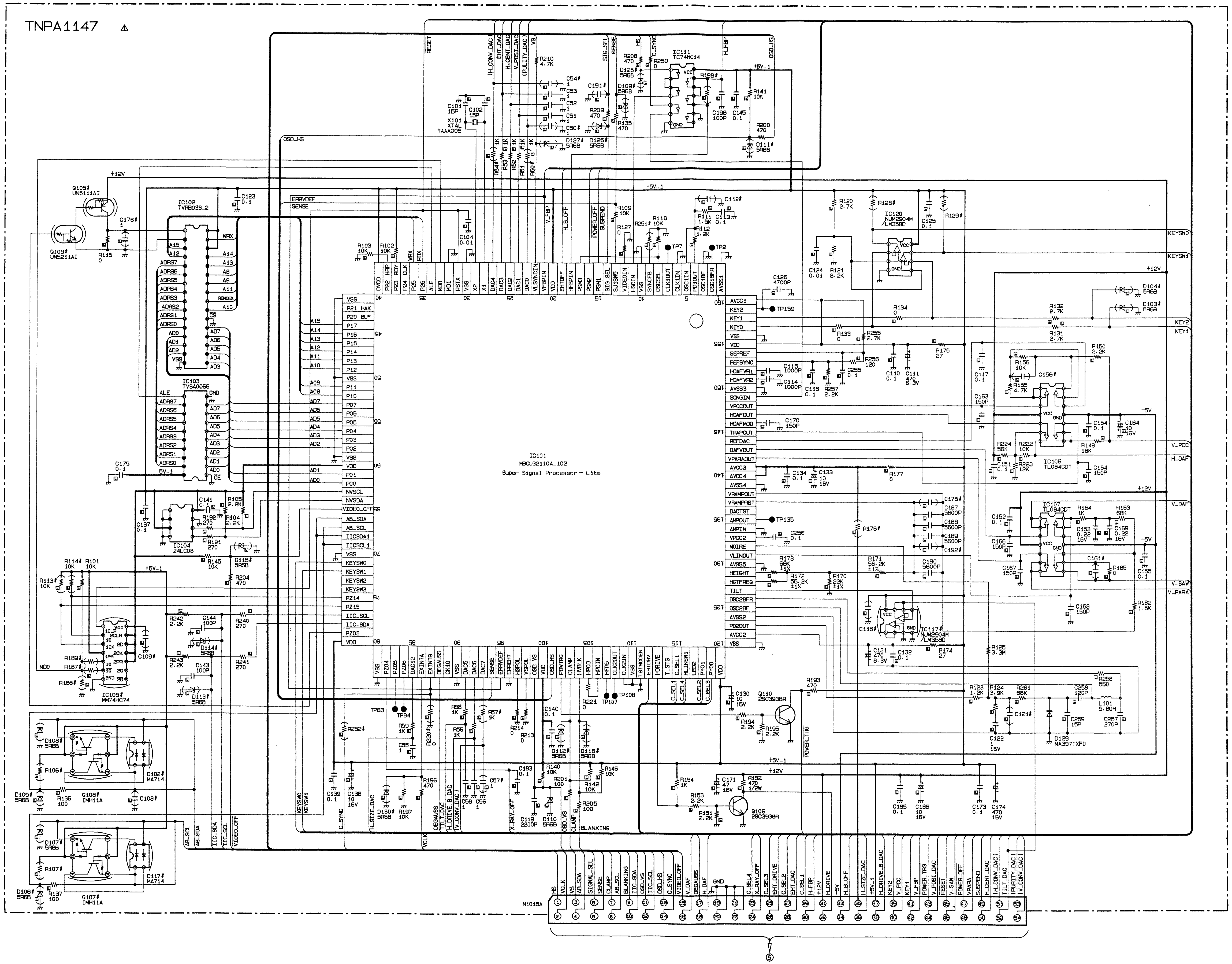


N110B
G
R
B
R1127 75 ±1% 1/2W
R1027 75 ±1% 1/2W
R1227 75 ±1% 1/2W
IC1302 M52741SP700
SELECT
G-IN
VCC
G-OSD
GND
R-IN
SOG IN
B-OSD
R-OSD
B-IN
ABL
NC
VCC (5V)
SOG OUT
G-OUT
G-F/B
R-OUT
R-F/B
BRIGHT
B-OUT
B-F/B
BLK
R.L.L (DAC)
B.L.L (DAC)
G.L.L (DAC)
ABL (DAC)
SDA
SCL
CLAMP
C1320 47 16V
R1401 33
C1125 0.01
C1126 4.7 50V
R1128 33
R1129 33
C1127 0.1
D1106#
D1107#
R245 1.5K
C1025 0.01
R285 1K
C1026 4.7 50V
R1028 33
R247 100K
C1027 0.1
D1006#
D1007#
C281 0.01
Q280 2SA1739R
C280 1 50V
R1029 33
C1225 0.01
C1226 4.7 50V
D1206#
D1207#
R1228 33
R1229 33
C1227 0.1
R1340 330
C1340#
Q1385 2SD1819AQR
C1322 56 25V
C1321 0.01
R248 1K
R249 560
Q249 2SC3938QR
C1409 1 16V
R1327 47
L1327 220
C1325#
R1131 470 1/8W
R1325 23.7K ±1%
R1031 680 1/8W
R1326 4.64K ±1%
C1323 0.01
R1231 680 1/8W
D1325
D1326#
R1322 100
R1321 100
R1320 100
D1324 ERA82-004
C1326 56 25V
R1307 39 1/2W
IC1307# L78M08T
C1327 100 50V
R1132 22
Q1135 2SC3811QR
C1135#
R1135 120 1/2W
L1135 1
Q1035 2SC3811QR
R1032 22
C1035#
R1035 120 1/2W
L1035 1
C1235#
R1232 22
Q1235 2SC3811QR
R1235 120 1/2W
L1235 1
R1243 18K
C1243 12P
R1242 127 ±1%
C1242 43P
C1240#
R1241 511 ±1%
R1245 2.05K ±1%
R1043 18K
C1043 12P
R1042 110 ±1%
C1042 43P
C1040#
R1041 511 ±1%
R1045 2.05K ±1%
R1143 18K
C1143 12P
R1142 127 ±1%
C1142 43P
C1140#
R1141 511 ±1%
R1145 2.05K ±1%
IC1303 VP463
C1250 4700P 100V
R1250 100K
C1251# 0.01 100V
C1252 4.7 100V
C1052 4.7 100V
C1051# 0.01 100V
R1050 100K
C1050 4700P 100V
C1151# 0.01 100V
C1152 4.7 100V
R1150 100K
C1150 4700P 100V
+79.5V
D1251 MA2Z001
D1252 MA2Z001
R1251 76.8K ±1%
R1252 2.21K ±1%
BLUE
D1051 MA2Z001
D1052 MA2Z001
R1051 76.8K ±1%
RED
R1052 2.21K ±1%
D1151 MA2Z001
D1152 MA2Z001
R1151 76.8K ±1%
GREEN
R1152 2.21K ±1%
+79.5V
IC1401 LSC4385DW2EL
+5V
VSS
R
B
G
FBKG
INT
VFLB
VDD
VSS(A)
VCO
RP
VDD(A)
HFLB
SS
SDA
SCL
C1005 10P
C1205 10P
C1105 10P
C1401 51P
C1402 0.1
R1402 5.6K
C1404# 220P
C1403 0.068
R1405 1M
R1403 1.5K
R1404 1.5K
C1405 0.1
C1406 100 6.3V
L1401 150
C1408 22P
C1410 10 25V
R1412 100
R1413 100
R1415 1K
R1414 1K
C1412 3.3 50V
C1414 3.3 50V
R1360 1K
+5V_1
BRIGHTNESS
OSD_HS
BLANKING
OSD_VS
C_SYNC
ABL
CLAMP
IIC_SCL
IIC_SDA
ABL_DAC
G_DAC
B_DAC
R_DAC
+12V
5V
4.5Vp-p
0.6V
3V0-p
0V
4.4Vp-p
4.9V0-p
2.9V
1.9V0-p
1.1V
5.1V0-p
3.0V
4.0V0-p
2.8V
4.4V0-p
4.1V0-p
5.0Vp-p
4.9Vp-p
4.8V0-p
4.8Vp-p
2.4V0-p
1.2V
68.0V0-p
40.0V
68V0-p
44.0V
38V
4.9V
2.4V
2.3V
4.0V

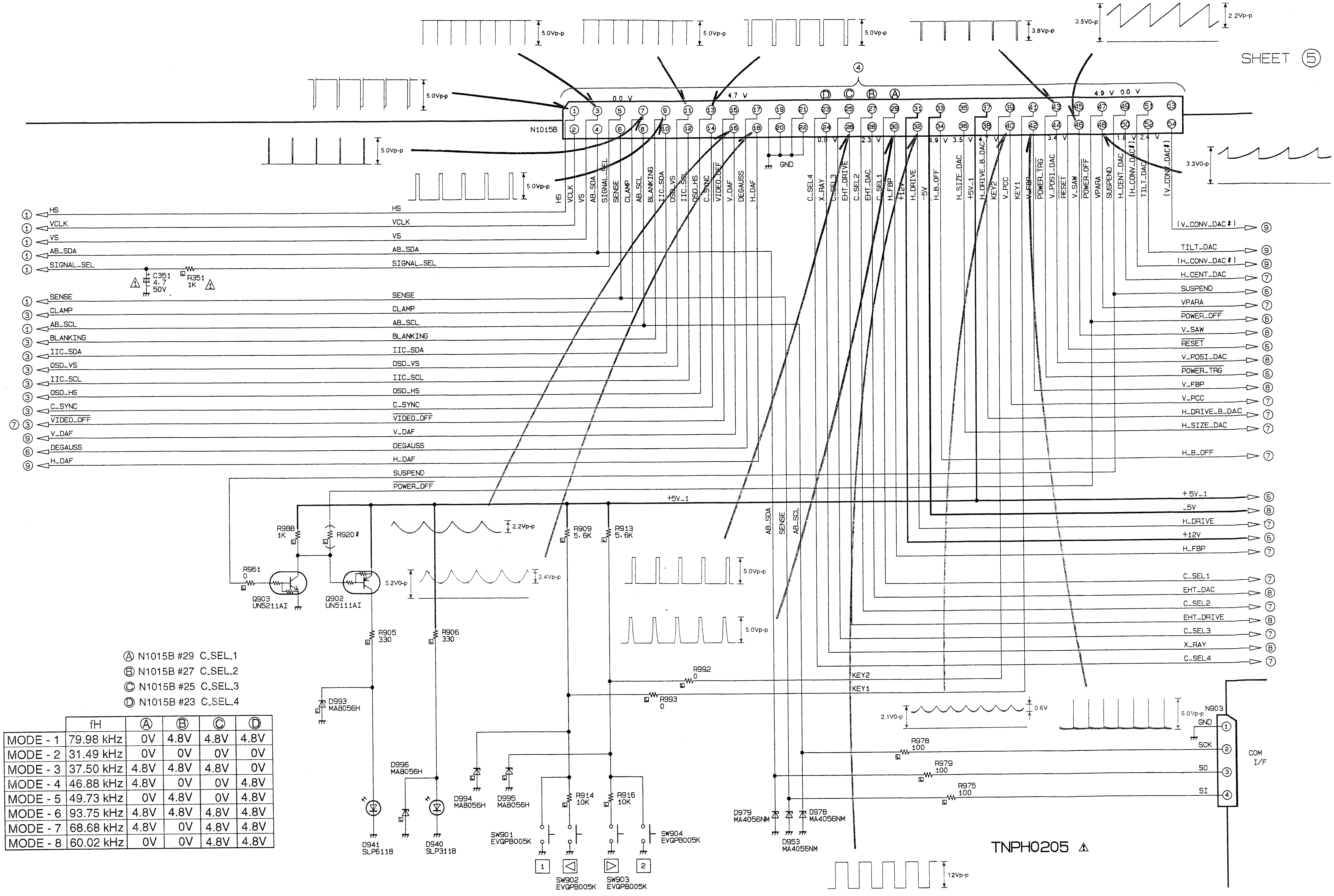
TNPA1083X ⚠


SHEET ③
DY: MEY46KHA1
M46LNS180X36
or M46LNS180X
19" SL
0.25mm
TNPA1083X
TNPH0205
+95V
BLUE
RED
GREEN
C1253 0.47 100V
C1053 0.47 100V
C1153 0.47 100V
R1267 220K 1/4W
R1067 220K 1/4W
R1167 220K 1/4W
Q1265 2SC4412_45
Q1065 2SC4412_45
Q1165 2SC4412_45
D1265 MA167A
D1065 MA167A
D1165 MA167A
R1266 10K
R1066 10K
R1166 10K
R1265 220
R1065 220
R1165 220
C1265 0.068 250V
C1065 0.068 250V
C1165 0.068 250V
C1266 1 100V
C1066 1 100V
C1166 1 100V
J1265
J1065
J1165
IC1305 STK190_110
+12V
C1345 0.1
C1346 10 25V
C1347 0.01 100V
C1348 10 100V
B_DAC
R_DAC
G_DAC
ABL
ABL_DAC
+79.5V
R1261 23.7K ±1%
R1061 23.7K ±1%
R1161 23.7K ±1%
C1261
C1061
C1161
R1255 1K 1/4W
L1256 0.22
R1257 33 1/2W
C1255 1000P 500V
R1256 120
S1251 TAGDSP141T
R1055 1K 1/4W
L1056 0.22
R1057 33 1/2W
C1055 1000P 500V
R1056 100
S1051 TAGDSP141T
R1155 1K 1/4W
L1156 0.22
R1157 33 1/2W
C1155 1000P 500V
R1156 100
S1151 TAGDSP141T
N1004 TJSC00500
kR
kG
kB
76.8V0-p
46.4V
74.8V0-p
49.2V
78V0-p
44V
63.2V0-p
26.8V
0V
3.5V0-p
2.2Vp-p
3.7Vp-p
4.2Vp-p
27Vp-p
R1346 560 1/2W
R1345 2.2K
D1345 MA4056NM
Q1346 2SA1739R
Q1345 UN5111
R1338 12K
R1339 18K
C1333 0.01
C1328 220 16V
D1331 MA167A
IC1331 NJM2904M
VR1335 5.6K
R1336 22K
C1336
R1323 68K
L1331
R1332
C1332 0.22 25V
R1333 7.5K ±1%
R1334 10K ±1%
D1340 MA4051NM
D1342 MA4051NM
D1341 MA4051NM
R1341 8.2K 1/2W
C1343 1000P 500V
L1341 EXCELDR35V
C1341
C1342 22 100V
L1340 EXCELDR35V
+12V
Q1380 KTA733
R1392 4.7K
R1393 1.5K
R1394 3.9K
D1383 MA4100NL
Q1381 UN5211AI
R1391 1.2M 1/2W
Q1382 HBF423
R1366 10K
R1368 2.2K
C1381 0.1
IC1381 NJM2904M /LM358D
R1361 82K
+5V
R1396 220K 1/2W
C1370 1000P 500V
R1395 10K
D1382 EU02Z
R1365 1.8M
C1365 10P 500V
+27V
C1337 10 50V
C1338 220P
R1397 3.3K
C1339 0.1
Q1384 2SC3757QR
Q1383 2SC3938QR
R1398 4.7K
R1399 6.8K
D1384 MA111
R1384 6.8K
R1362 15K
D1346
D1347
D1348
D1349
R1364 90.9K ±1%
C1330
C1391 0.068 250V
D1381 MA111
S1351 TAGDSP141T
C1351 470P 500V
C1352 1000P 500V
S1355 TAGDSP201M
D1343 ERA18_04
D1335
L1352 EXCELDR35V
S1371
R1355 68 1/2W
L1355 EXCELDR35V
S1372 TAGA0005
C1372 2200P 630V
C1373 2200P 630V
C1374 2200P 630V
L1371 EXCELDR35V
C1371 2700P 1KV
h
g1
g2
g3 -1
g3 -2
a
EHT
N1005
GND
N1007
S_FOCUS (WHITE)
D_FOCUS (RED)
SCREEN
N1006
S291
C1353
CLAMP
+5V_1
C_SYNC
J1305
IC1310 BU4571
L1320 EXCELDR35V
L1321 EXCELDR35V
BRIGHTNESS
IIC_SCL
-5V
L1324 EXCELDR35V
C1329 100 10V
L1323 TSKA092
D1323 MA4056NM
BLANKING
R1324
IIC_SDA
OSD_VS
OSD_HS
L1322 TSKA092
D1322 MA4056NM
N100B
N100A
GND
+79.5V
C_SYNC
VID_OFF
-5V
OSD_HS
+28V
OSD_VS
+12V
BLANKING
ABL
CLAMP
+120V
IIC_SCL
HEATER
IIC_SDA
+5V_1
GND
-200V

TNPA1147 ⚠


IC101
MBCU32110A_102
Super Signal Processor - Lite
IC102
TVR8033_2
IC103
TVSA0066
IC104
24LC08
IC105
MM74HC74
IC106
TL084CDT
IC107
TL084CDT
IC111
TC74HC14
IC117
NJM2904M
/LM358D
IC120
NJM2904M
/LM358D
Q105
UN5111AI
Q109
UN5211AI
Q106
2SC3938R
Q110
2SC3938R
Q107
IMH11A
Q108
IMH11A
X101
XTAL
TAAA005
D129
MA357TXFD
D102
MA714
D117
MA714
L101
5.6uH
+12V
+5V_1
-5V
KEYSW0
KEYSW1
KEY2
KEY1
V_PCC
H_DAF
V_DAF
V_SAW
V_PARA
OSD_HS
ERRVDEF
SENSE
RESET
H_FBP
BLANKING
POWER_TRG
N1015A
HS
VCLK
VS
AB_SDA
SIGNAL_SEL
SENSE
CLAMP
AB_SCL
BLANKING
IIC_SDA
OSD_VS
IIC_SCL
OSD_HS
C_SYNC
VIDEO_OFF
V_DAF
DEGAUSS
H_DAF
GND
C_SEL4
X_RAY_OFF
C_SEL3
EHT_DRIVE
C_SEL2
EHT_DAC
C_SEL1
H_FBP
+12V
H_DRIVE
+5V
H_B_OFF
H_SIZE_DAC
+5V_1
H_DRIVE_B_DAC
KEY2
V_PCC
KEY1
V_FBP
POWER_TRG
V_POSI_DAC
RESET
V_SAW
POWER_OFF
VPARA
SUSPEND
H_CENT_DAC
(H_CONV_DAC)
TILT_DAC
(PURITY_DAC)
V_CONV_DAC
⑤

SHEET ⑤

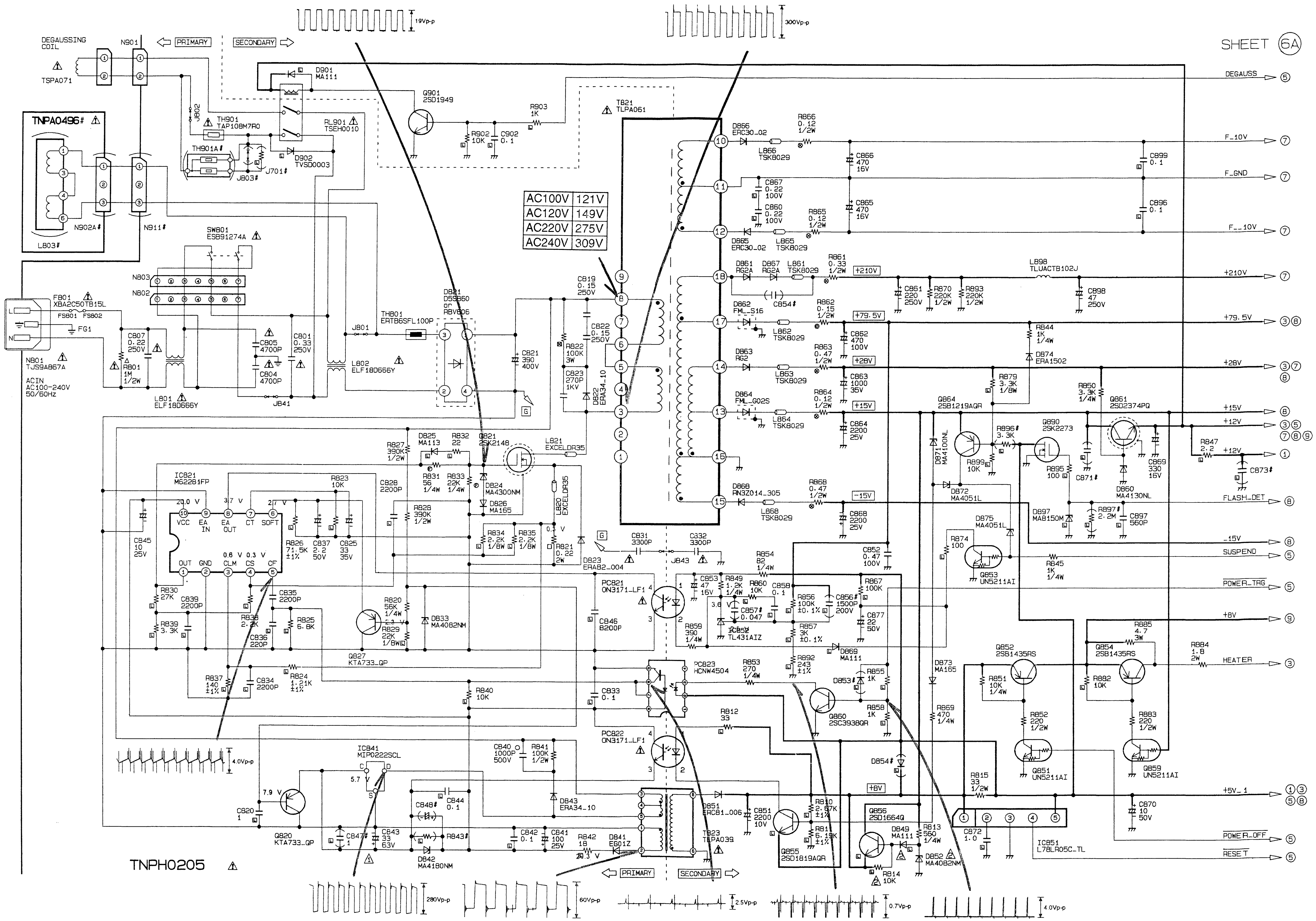


N1015B
④
0.0 V
4.7 V
4.9 V 0.0 V
Ⓓ Ⓒ Ⓑ Ⓐ
5.0Vp-p
3.8Vp-p
2.2Vp-p
3.5V0-p
3.3V0-p
1.0Vp-p
5.2V0-p
2.4Vp-p
2.1V0-p
0.6V
12Vp-p
GND
HS
VCLK
VS
AB_SDA
SIGNAL_SEL
SENSE
CLAMP
AB_SCL
BLANKING
IIC_SDA
OSD_VS
IIC_SCL
OSD_HS
C_SYNC
VIDEO_OFF
V_DAF
DEGAUSS
H_DAF
SUSPEND
POWER_OFF
C_SEL4
X_RAY
C_SEL3
EHT_DRIVE
C_SEL2
EHT_DAC
C_SEL1
H_FBP
+12V
H_DRIVE
-5V
H_B_OFF
H_SIZE_DAC
+5V_1
H_DRIVE_B_DAC
KEY2
V_PCC
KEY1
V_FBP
POWER_TRG
V_POSI_DAC
RESET
V_SAW
VPARA
H_CENT_DAC
(H_CONV_DAC#)
TILT_DAC
(V_CONV_DAC#)
C351 4.7 50V
R351 1K
R988 1K
R920#
R961 0
Q903 UN5211AI
Q902 UN5111AI
R905 330
R906 330
R909 5.6K
R913 5.6K
R992 0
R993 0
D993 MA8056H
D996 MA8056H
D994 MA8056H
D995 MA8056H
D941 SLP6118
D940 SLP3118
R914 10K
R916 10K
SW901 EVQPB005K
SW902 EVQPB005K
SW903 EVQPB005K
SW904 EVQPB005K
1
2
D979 MA4056NM
D978 MA4056NM
D953 MA4056NM
R978 100
R979 100
R975 100
N903
GND
SCK
SO
SI
COM I/F
TNPH0205 ⚠

Ⓐ N1015B #29 C_SEL_1
Ⓑ N1015B #27 C_SEL_2
Ⓒ N1015B #25 C_SEL_3
Ⓓ N1015B #23 C_SEL_4

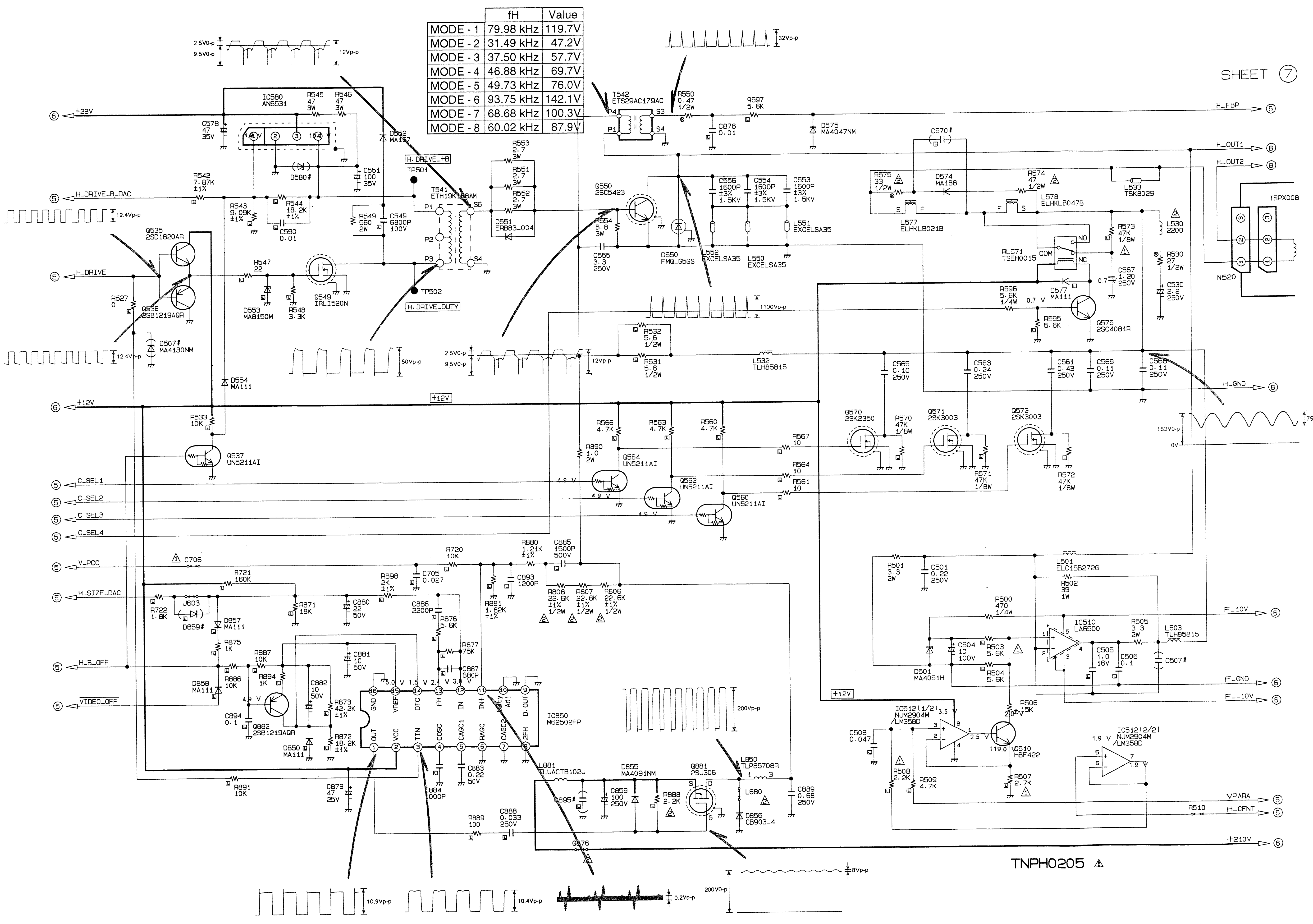
	fH	Ⓐ	Ⓑ	Ⓒ	Ⓓ
MODE - 1	79.98 kHz	0V	4.8V	4.8V	4.8V
MODE - 2	31.49 kHz	0V	0V	0V	0V
MODE - 3	37.50 kHz	4.8V	4.8V	4.8V	0V
MODE - 4	46.88 kHz	4.8V	0V	0V	4.8V
MODE - 5	49.73 kHz	0V	4.8V	0V	4.8V
MODE - 6	93.75 kHz	4.8V	4.8V	4.8V	4.8V
MODE - 7	68.68 kHz	4.8V	0V	4.8V	4.8V
MODE - 8	60.02 kHz	0V	0V	4.8V	4.8V

SHEET 6A



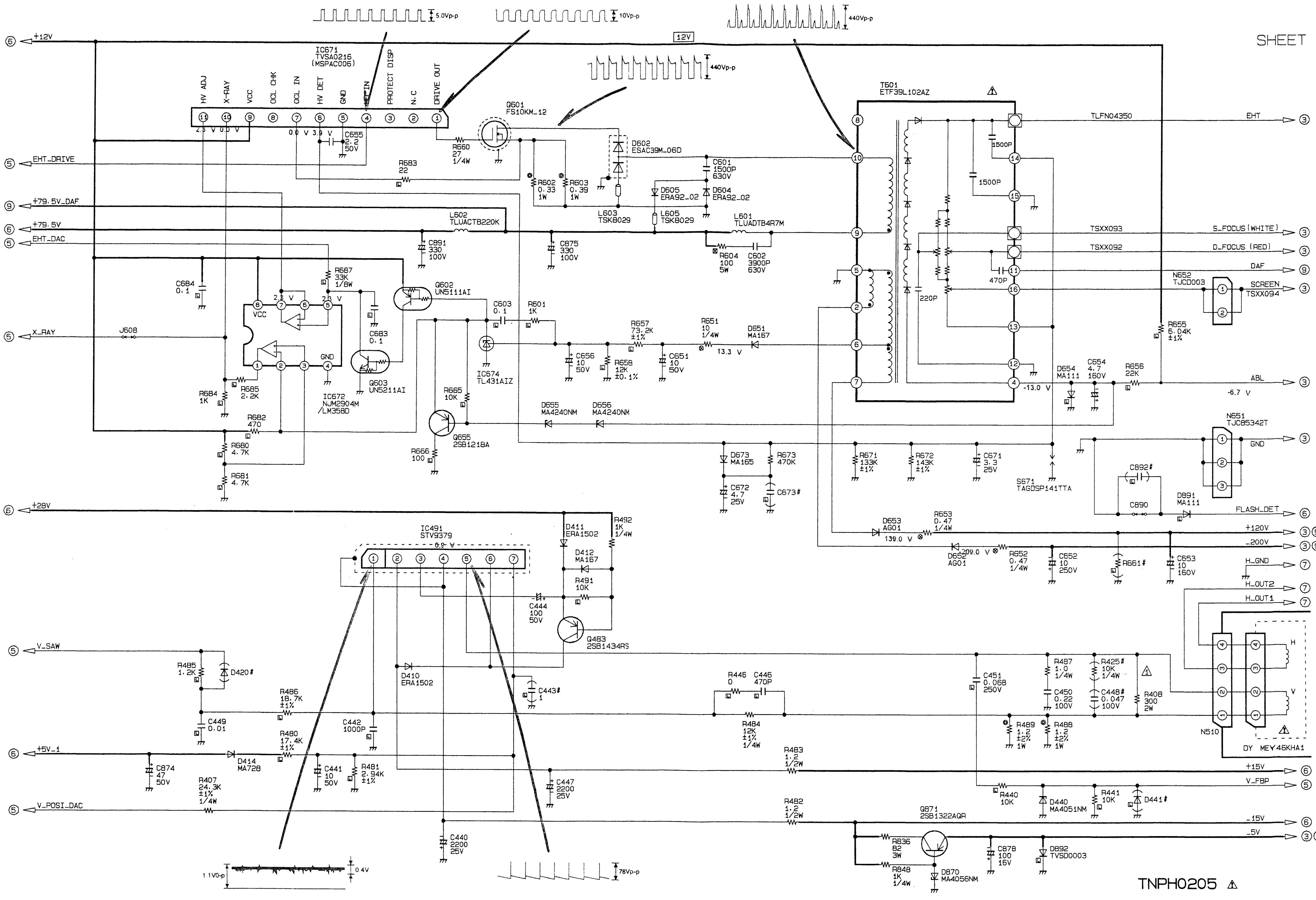
19Vp-p
300Vp-p
DEGAUSSING COIL
TSPA071
N901
PRIMARY
SECONDARY
D901 MA111
Q901 2SD1949
R903 1K
R902 10K
C902 0.1
T821 TLPA061
TNPA0496
TH901 TAP10BM7R0
RL901 TSEH0010
D902 TVSD0003
TH901A
J701
J803
N902A
N911
L803
SW801 ESB91274A
AC100V 121V
AC120V 149V
AC220V 275V
AC240V 309V
N803
N802
F801 XBA2C50TB15L
FS801 FS802
FG1
N801 TJS9AB67A
ACIN AC100-240V 50/60Hz
C807 0.22 250V
R801 1M 1/2W
L801 ELF18D666Y
C805 4700P
C804 4700P
C801 0.33 250V
L802 ELF18D666Y
J801
J841
TH801 ERTB6SFL100P
D821 D5SB60 or RBV606
C821 390 400V
C819 0.15 250V
C822 0.15 250V
R822 100K 3W
C823 270P 1KV
D822 ERA34-10
D866 ERC30-02
R866 0.12 1/2W
L866 TSK8029
C866 470 16V
C867 0.22 100V
C860 0.22 100V
R865 0.12 1/2W
C865 470 16V
D865 ERC30-02
L865 TSK8029
C899 0.1
C896 0.1
DEGAUSS ⑤
F-10V ⑦
F-GND ⑦
F--10V ⑦
D861 RG2A
D867 RG2A
L861 TSK8029
R861 0.33 1/2W
+210V
C854
C861 220 250V
R870 220K 1/2W
R893 220K 1/2W
L898 TLUACTB102J
C898 47 250V
+210V ⑦
D862 FML-S16
R862 0.15 1/2W
+79.5V
L862 TSK8029
C862 470 100V
+79.5V ③⑧
R844 1K 1/4W
D874 ERA1502
D863 RG2
R863 0.47 1/2W
+28V
L863 TSK8029
C863 1000 35V
+28V ③⑦⑧
R879 3.3K 1/8W
R850 3.3K 1/4W
Q861 2SD2374PQ
D864 FML-G02S
R864 0.12 1/2W
+15V
L864 TSK8029
C864 2200 25V
Q864 2SB1219AQR
+15V ⑧
+12V ③⑤⑦⑧⑨
Q890 2SK2273
R896 3.3K
R899 10K
R895 100
C871
D871 MA4100NL
R847 2.2
+12V ①
C869 330 16V
C873
D872 MA4051L
D860 MA4130NL
FLASH-DET ⑧
D868 RN3Z014-305
R868 0.47 1/2W
-15V
L868 TSK8029
C868 2200 25V
D875 MA4051L
D897 MA8150M
R897 2.2M
C897 560P
-15V ⑧
SUSPEND ⑤
R874 100
Q853 UN5211AI
R845 1K 1/4W
POWER-TRG ⑤
+8V ⑨
R827 390K 1/2W
D825 MA113
R832 22
Q821 2SK2148
L821 EXCELDR35
R831 56 1/4W
R833 22K 1/4W
D824 MA4300NM
D826 MA165
L820 EXCELDR35
IC821 M62281FP
R823 10K
C828 2200P
R828 390K 1/2W
20.0 V
3.7 V
2.7 V
VCC EA IN EA OUT CT SOFT
OUT GND CLM CS CF
0.6 V 0.3 V
C845 10 25V
R826 71.5K ±1%
C837 2.2 50V
C825 33 35V
R834 2.2K 1/8W
R835 2.2K 1/8W
R821 0.22 2W
D823 ERA82-004
C831 3300P
C832 3300P
J843
R830 27K
C839 2200P
R839 3.3K
C835 2200P
R838 2.2K
C836 220P
R825 6.8K
R820 56K 1/4W
R829 22K 1/8W
D833 MA4082NM
Q827 KTA733-QP
R837 140 ±1%
C834 2200P
R824 1.21K ±1%
R840 10K
PC821 ON3171-LF1
C846 8200P
C853 47 16V
R849 1.2K 1/4W
R860 10K
C858 0.1
R856 100K ±0.1%
C856 1500P 200V
R867 100K
C857 0.047
C877 22 50V
IC852 TL431AIZ
R859 390 1/4W
R857 3K ±0.1%
R854 82 1/4W
C852 0.47 100V
D869 MA111
R892 243 ±1%
PC823 HCNW4504
R853 270 1/4W
C833 0.1
D853
R855 1K
Q860 2SC3938QR
R858 1K
R812 33
D873 MA165
R869 470 1/4W
Q852 2SB1435RS
R851 10K 1/4W
R852 220 1/2W
Q851 UN5211AI
Q854 2SB1435RS
R885 4.7 3W
R882 10K
R883 220 1/2W
Q859 UN5211AI
R884 1.8 2W
HEATER ③
4.0Vp-p
IC841 MIP0222SCL
C D S
5.7 V
7.9 V
C820 1
Q820 KTA733-QP
C840 1000P 500V
R841 100K 1/2W
PC822 ON3171-LF1
D854
+8V
C848
C844 0.1
D843 ERA34-10
C847 1
C843 33 63V
R843
D842 MA4180NM
C842 0.1
C841 100 25V
R842 18
D841 EG01Z
T823 TLPA039
D851 ERC81-006
C851 2200 10V
R810 2.67K ±1%
R811 6.19K ±1%
Q855 2SD1819AQR
Q856 2SD1664Q
D849 MA111
R813 560 1/4W
D852 MA4082NM
R814 10K
R815 33 1/2W
C872 1.0
IC851 L78LR05C-TL
+5V-1 ①③⑤⑧
C870 10 50V
POWER-OFF ⑤
RESET ⑤
280Vp-p
60Vp-p
2.5Vp-p
0.7Vp-p
4.0Vp-p

TNPH0205


SHEET ⑦
IC580 AN6531
R545 47 3W
R546 47 3W
C578 47 35V
D552 MA167
C551 100 35V
D580
+28V
H_DRIVE_B_DAC
R542 7.87K ±1%
R543 9.09K ±1%
R544 18.2K ±1%
C590 0.01
R549 560 2W
C549 6800P 100V
H.DRIVE_+B
TP501
T541 ETH19K1BBAM
R553 2.7 3W
R551 2.7 3W
R552 2.7 3W
D551 ERB83_004
H_DRIVE
Q535 2SD1820AR
Q536 2SB1219AQR
R527 0
R547 22
D553 MA8150M
R548 3.3K
Q549 IRLI520N
TP502
H.DRIVE_DUTY
D507 MA4130NM
D554 MA111
+12V
R533 10K
Q537 UN5211AI
C_SEL1
C_SEL2
C_SEL3
C_SEL4
V_PCC
C706
H_SIZE_DAC
R721 160K
R722 1.8K
J603
D859
D857 MA111
R871 18K
C880 22 50V
R875 1K
H_B_OFF
VIDEO_OFF
D858 MA111
R886 10K
R887 10K
R894 1K
C894 0.1
Q882 2SB1219AQR
C881 10 50V
C882 10 50V
R873 42.2K ±1%
R872 18.2K ±1%
D850 MA111
R891 10K
C879 47 25V
C884 1000P
IC850 M62502FP
GND VREF DTC FB IN- IN+ Duty Adj D.OUT
OUT VCC TIN COSC CAGC1 RAGC CAGC2 2FH
R720 10K
C705 0.027
R896 2K ±1%
C886 2200P
R876 5.6K
R877 75K
C887 680P
R880 1.21K ±1%
C885 1500P 500V
C893 1200P
R881 1.82K ±1%
R808 22.6K ±1% 1/2W
R807 22.6K ±1% 1/2W
R806 22.6K ±1% 1/2W
C883 0.22 50V
R889 100
C888 0.033 250V
L881 TLUACTB102J
C895
C859 100 250V
D855 MA4091NM
R888 2.2K
Q881 2SJ306
L850 TLP85708R
L680
D856 CB903_4
C889 0.68 250V
Q876
T542 ETS29AC1Z9AC
R550 0.47 1/2W
R597 5.6K
C876 0.01
D575 MA4047NM
H_FBP
H_OUT1
H_OUT2
Q550 2SC5423
R554 6.8 3W
C555 3.3 250V
D550 FMQ_G5GS
C556 1600P ±3% 1.5KV
C554 1600P ±3% 1.5KV
C553 1600P ±3% 1.5KV
L552 EXCELSA35
L550 EXCELSA35
L551 EXCELSA35
C570
R575 33 1/2W
D574 MA188
R574 47 1/2W
L578 ELHKLB047B
L577 ELHKLB021B
L533 TSK8029
TSPX008
L530 2200
R573 47K 1/8W
RL571 TSEH0015
NO COM NC
R530 27 1/2W
C567 1.20 250V
C530 2.2 250V
N520
R596 5.6K 1/4W
D577 MA111
R595 5.6K
Q575 2SC4081A
R532 5.6 1/2W
R531 5.6 1/2W
L532 TLH85815
C565 0.10 250V
C563 0.24 250V
C561 0.43 250V
C569 0.11 250V
C568 0.11 250V
H_GND
R566 4.7K
R563 4.7K
R560 4.7K
R890 1.0 2W
Q564 UN5211AI
Q562 UN5211AI
Q560 UN5211AI
R567 10
R564 10
R561 10
Q570 2SK2350
R570 47K 1/8W
Q571 2SK3003
R571 47K 1/8W
Q572 2SK3003
R572 47K 1/8W
R501 3.3 2W
C501 0.22 250V
L501 ELC18B272G
R502 39 1W
R500 470 1/4W
IC510 LA6500
R505 3.3 2W
L503 TLH85815
F_10V
C504 10 100V
R503 5.6K
C505 1.0 16V
C506 0.1
C507
D501 MA4051H
R504 5.6K
F_GND
F_-10V
R506 15K
IC512(1/2) NJM2904M /LM358D
C508 0.047
Q510 HBF422
R508 2.2K
R509 4.7K
R507 2.7K
IC512(2/2) NJM2904M /LM358D
VPARA
R510
H_CENT
+210V
TNPH0205
2.5V0-p 9.5V0-p 12Vp-p
12.4Vp-p
50Vp-p
32Vp-p
1100Vp-p
153V0-p 0V 175V
200Vp-p
10.9Vp-p
10.4Vp-p
0.2Vp-p
8Vp-p
200V0-p

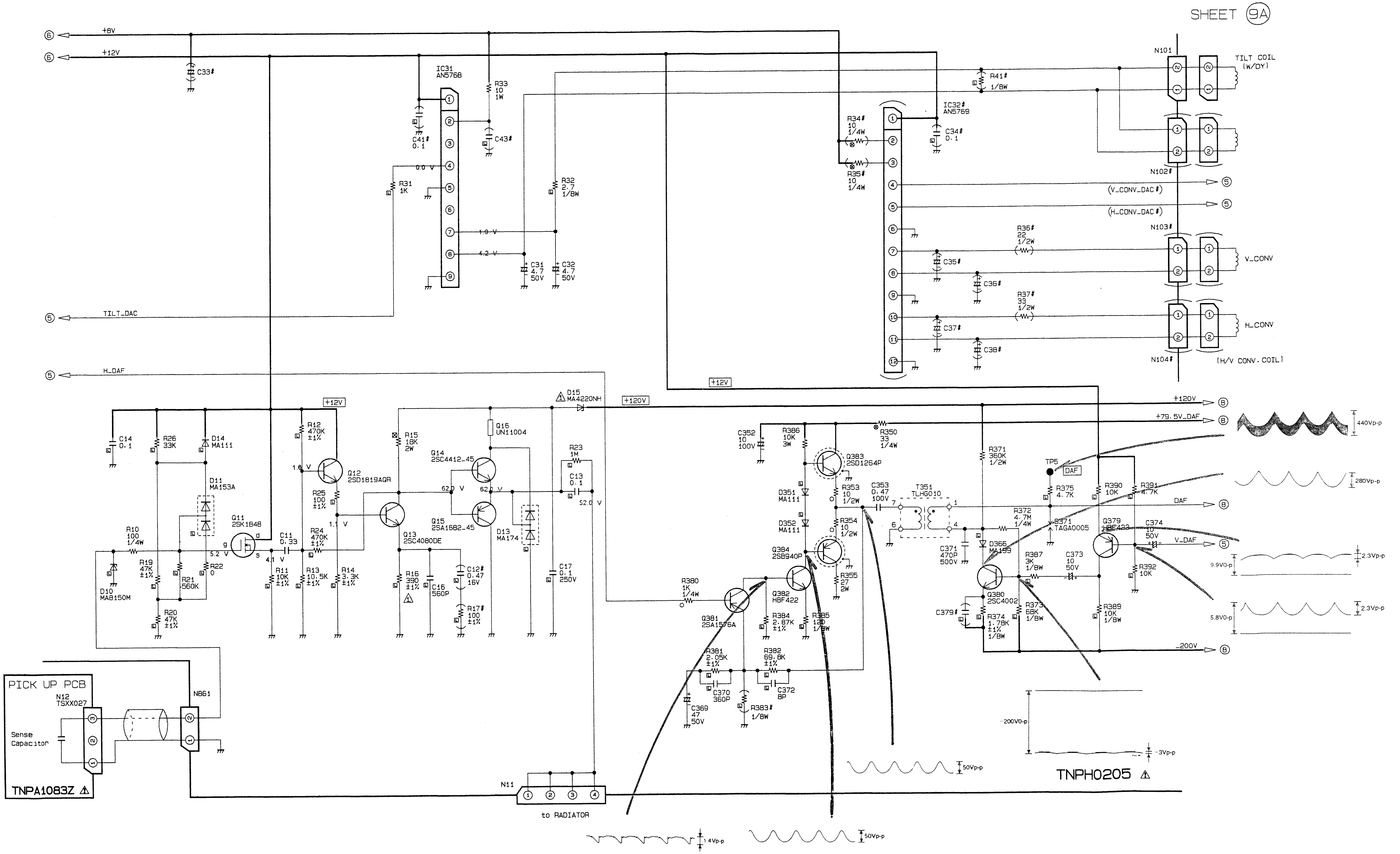
	fH	Value
MODE - 1	79.98 kHz	119.7V
MODE - 2	31.49 kHz	47.2V
MODE - 3	37.50 kHz	57.7V
MODE - 4	46.88 kHz	69.7V
MODE - 5	49.73 kHz	76.0V
MODE - 6	93.75 kHz	142.1V
MODE - 7	68.68 kHz	100.3V
MODE - 8	60.02 kHz	87.9V

SHEET ⑧

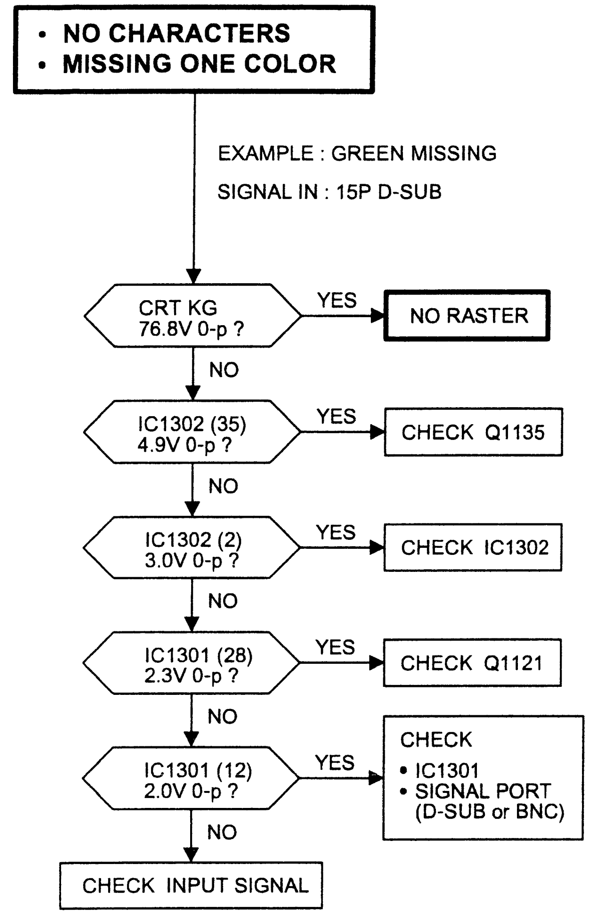


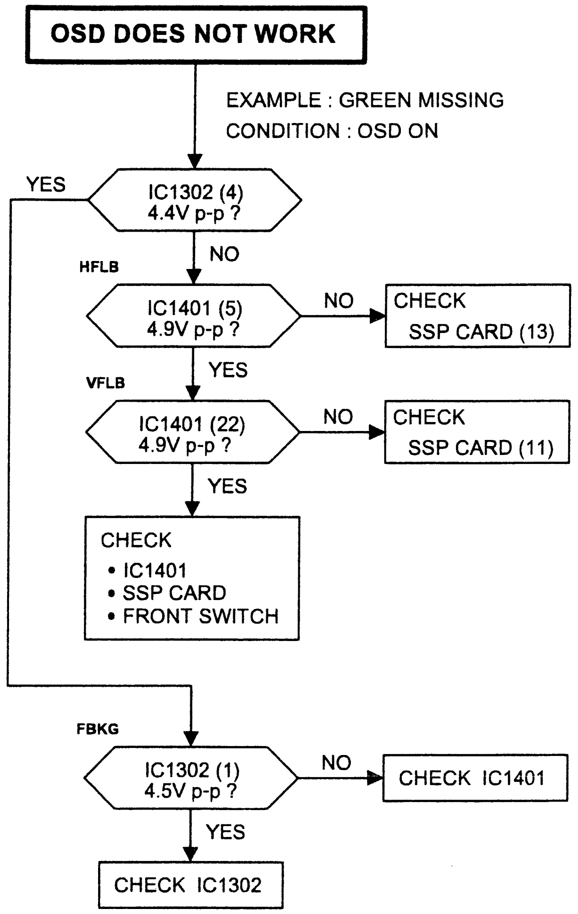
5.0Vp-p
10Vp-p
440Vp-p
440Vp-p
12V
⑥ +12V
IC671
TVSA0216
(MSPAC006)
HV ADJ
X-RAY
VCC
OCL CHK
OCL IN
HV DET
GND
REF IN
PROTECT DISP
N.C
DRIVE OUT
2.5 V
0.0 V
0.0 V
3.9 V
C655
2.2
50V
Q601
FS10KM_12
R660
27
1/4W
R683
22
⑤ EHT_DRIVE
R602
0.33
1W
R603
0.39
1W
D602
ESAC39M_06D
C601
1500P
630V
D605
ERA92_02
D604
ERA92_02
L603
TSK8029
L605
TSK8029
⑨ +79.5V_DAF
⑥ +79.5V
⑤ EHT_DAC
L602
TLUACTB220K
L601
TLUADTB4R7M
C891
330
100V
C875
330
100V
R604
100
5W
C602
3900P
630V
C684
0.1
R687
33K
1/8W
Q602
UN5111AI
C603
0.1
R601
1K
VCC
2.5 V
2.5 V
GND
C683
0.1
Q603
UN5211AI
IC672
NJM2904M
/LM358D
⑤ X_RAY
J608
IC674
TL431AIZ
R657
73.2K
±1%
C656
10
50V
R658
12K
±0.1%
C651
10
50V
R651
10
1/4W
D651
MA167
13.3 V
R684
1K
R685
2.2K
R682
470
R680
4.7K
R681
4.7K
R665
10K
Q655
2SB1218A
R666
100
D655
MA4240NM
D656
MA4240NM
T601
ETF39L102AZ
⚠
1500P
1500P
470P
220P
TLFN04350
EHT ③
TSXX093
S_FOCUS (WHITE) ③
TSXX092
D_FOCUS (RED) ③
DAF ⑨
N652
TJC0003
SCREEN
TSXX094 ③
R655
6.04K
±1%
D654
MA111
C654
4.7
160V
R656
22K
-13.0 V
ABL ③
-6.7 V
N651
TJC85342T
GND ③
D673
MA165
R673
470K
C672
4.7
25V
C673#
R671
133K
±1%
R672
143K
±1%
C671
3.3
25V
S671
TAGDSP141TTA
C892#
C890
D891
MA111
FLASH_DET ⑥
⑥ +28V
R492
1K
1/4W
D411
ERA1502
IC491
STV9379
0.9 V
D412
MA167
R491
10K
C444
100
50V
Q483
2SB1434RS
D653
AG01
139.0 V
R653
0.47
1/4W
+120V ③⑨
D652
AG01
-209.0 V
R652
0.47
1/4W
C652
10
250V
R651#
C653
10
160V
-200V ③⑨
H_GND ⑦
H_OUT2 ⑦
H_OUT1 ⑦
⑤ V_SAW
R485
1.2K
D420#
D410
ERA1502
C443#
1
R486
18.7K
±1%
C449
0.01
C442
1000P
R446
0
C446
470P
R484
12K
±1%
1/4W
C451
0.068
250V
R487
1.0
1/4W
R425#
10K
1/4W
C450
0.22
100V
C448#
0.047
100V
R408
300
2W
R489
1.2
±2%
1W
R488
1.2
±2%
1W
N510
H
V
DY MEY45KHA1
⚠
⑥ +5V_1
C874
47
50V
D414
MA728
R480
17.4K
±1%
C441
10
50V
R481
2.94K
±1%
R407
24.3K
±1%
1/4W
C447
2200
25V
R483
1.2
1/2W
+15V ⑥
V_FBP ⑤
R440
10K
D440
MA4051NM
R441
10K
D441#
⑤ V_POSI_DAC
R482
1.2
1/2W
-15V ⑥
Q871
2SB1322AQR
-5V ③⑤
C440
2200
25V
R836
82
3W
R848
1K
1/4W
C878
100
16V
D892
TVSD0003
D870
MA4056NM
1.1V0-p
0.4V
78Vp-p

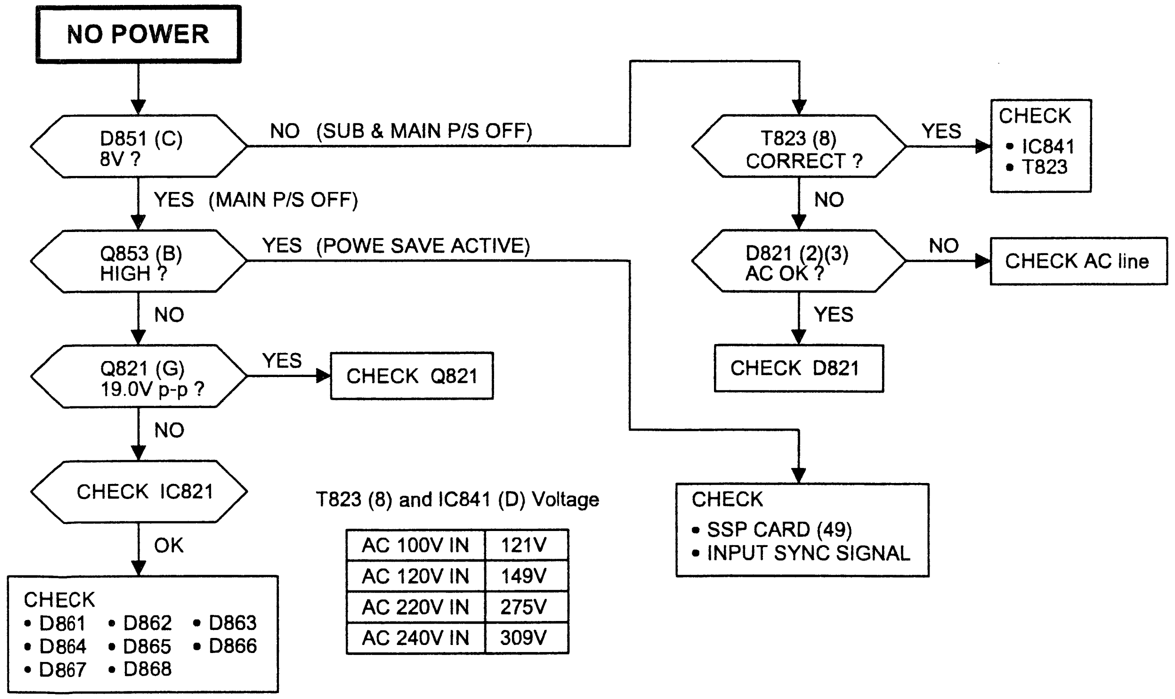
TNPH0205 ⚠


SHEET 9A
+8V
+12V
C33
IC31 AN5768
R33 10 1W
C41 0.1
C43
R31 1K
0.0 V
R32 2.7 1/8W
1.9 V
4.2 V
C31 4.7 50V
C32 4.7 50V
TILT_DAC
H_DAF
IC32 AN5769
R34 10 1/4W
R35 10 1/4W
C34 0.1
R41 1/8W
N101
TILT COIL (W/DY)
N102
(V_CONV_DAC)
(H_CONV_DAC)
N103
R36 22 1/2W
C35
C36
V_CONV
R37 33 1/2W
C37
C38
H_CONV
N104
(H/V CONV. COIL)
+12V
D15 MA4220NH
+120V
+120V
+79.5V_DAF
440Vp-p
280Vp-p
C14 0.1
R26 33K
D14 MA111
D11 MA153A
R12 470K ±1%
Q12 2SD1819AQR
1.8 V
R25 100 ±1%
Q11 2SK1848
R10 100 1/4W
5.2 V
4.1 V
C11 0.33
R24 470K ±1%
1.1 V
R15 18K 2W
Q16 UN11004
Q14 2SC4412_45
Q15 2SA1682_45
Q13 2SC4080DE
62.0 V
R23 1M
C13 0.1
52.0 V
D13 MA174
R19 47K ±1%
R21 560K
R22 0
D10 MA8150M
R20 47K ±1%
R11 10K ±1%
R13 10.5K ±1%
R14 3.3K ±1%
R16 390 ±1%
C16 560P
C12 0.47 16V
R17 100 ±1%
C17 0.1 250V
PICK UP PCB
N12 TSXX027
Sense Capacitor
TNPA1083Z
N861
N11
to RADIATOR
C352 10 100V
R386 10K 3W
R350 33 1/4W
Q383 2SD1264P
R353 10 1/2W
D351 MA111
D352 MA111
R354 10 1/2W
Q384 2SB940P
R355 27 2W
Q382 HBF422
R380 1K 1/4W
Q381 2SA1576A
R384 2.87K ±1%
R385 120 1/8W
R381 2.05K ±1%
R382 69.8K ±1%
C370 360P
C372 8P
C369 47 50V
R383 1/8W
C353 0.47 100V
T351 TLHG010
C371 470P 500V
R371 360K 1/2W
TP5
DAF
R375 4.7K
R372 4.7M 1/4W
S371 TAGA0005
D365 MA199
R387 3K 1/8W
C373 10 50V
Q380 2SC4002
C379
R373 68K 1/8W
R374 1.78K ±1% 1/8W
R390 10K
R391 4.7K
DAF
Q379 HBF423
C374 10 50V
V_DAF
R392 10K
R389 10K 1/8W
_200V
2.3Vp-p
9.9V0-p
5.8V0-p
2.3Vp-p
-200V0-p
3Vp-p
50Vp-p
TNPH0205
1.4Vp-p
50Vp-p

TROUBLE SHOOTING HINTS

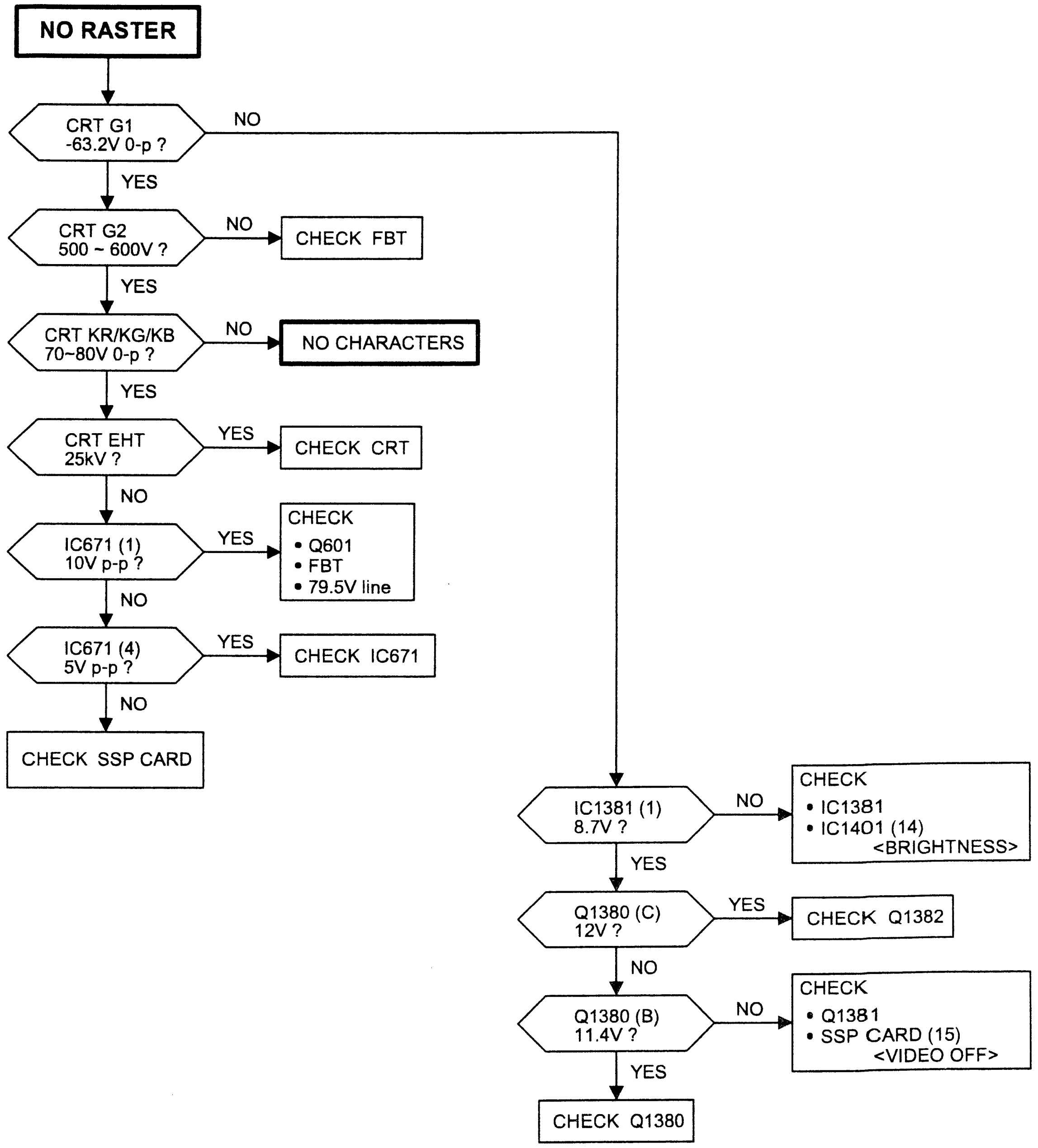

• NO CHARACTERS
• MISSING ONE COLOR
EXAMPLE : GREEN MISSING
SIGNAL IN : 15P D-SUB
CRT KG 76.8V 0-p ?
YES
NO RASTER
NO
IC1302 (35) 4.9V 0-p ?
YES
CHECK Q1135
NO
IC1302 (2) 3.0V 0-p ?
YES
CHECK IC1302
NO
IC1301 (28) 2.3V 0-p ?
YES
CHECK Q1121
NO
IC1301 (12) 2.0V 0-p ?
YES
CHECK • IC1301 • SIGNAL PORT (D-SUB or BNC)
NO
CHECK INPUT SIGNAL


OSD DOES NOT WORK
EXAMPLE : GREEN MISSING
CONDITION : OSD ON
YES
IC1302 (4) 4.4V p-p ?
NO
HFLB
IC1401 (5) 4.9V p-p ?
NO
CHECK SSP CARD (13)
YES
VFLB
IC1401 (22) 4.9V p-p ?
NO
CHECK SSP CARD (11)
YES
CHECK • IC1401 • SSP CARD • FRONT SWITCH
FBKG
IC1302 (1) 4.5V p-p ?
NO
CHECK IC1401
YES
CHECK IC1302

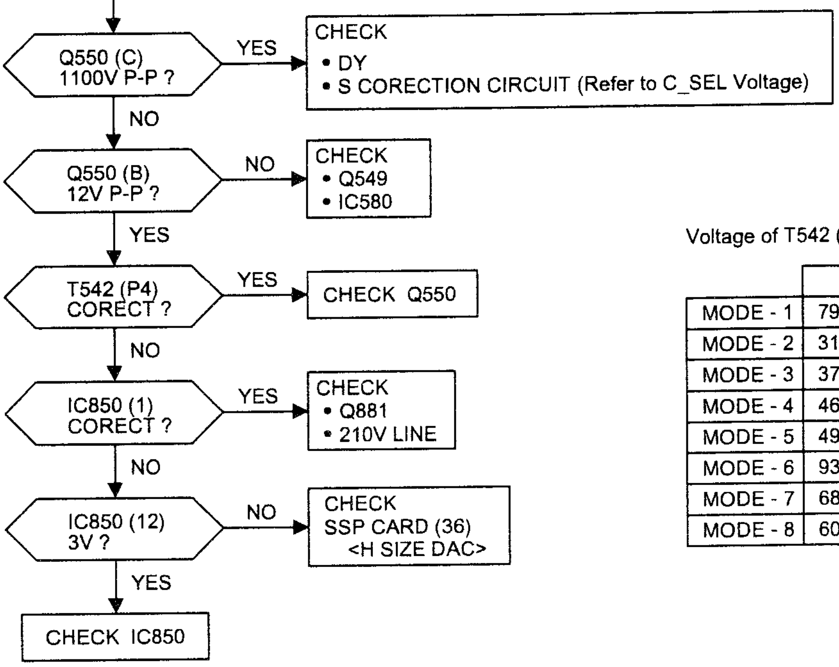

NO POWER
D851 (C) 8V ?
NO (SUB & MAIN P/S OFF)
YES (MAIN P/S OFF)
Q853 (B) HIGH ?
YES (POWE SAVE ACTIVE)
NO
Q821 (G) 19.0V p-p ?
YES
CHECK Q821
NO
CHECK IC821
OK
CHECK • D861 • D862 • D863 • D864 • D865 • D866 • D867 • D868
T823 (8) CORRECT ?
YES
CHECK • IC841 • T823
NO
D821 (2)(3) AC OK ?
NO
CHECK AC line
YES
CHECK D821
CHECK • SSP CARD (49) • INPUT SYNC SIGNAL

T823 (8) and IC841 (D) Voltage

AC 100V IN	121V
AC 120V IN	149V
AC 220V IN	275V
AC 240V IN	309V


NO RASTER
CRT G1 -63.2V 0-p ?
NO
YES
CRT G2 500 ~ 600V ?
NO
CHECK FBT
YES
CRT KR/KG/KB 70~80V 0-p ?
NO
NO CHARACTERS
YES
CRT EHT 25kV ?
YES
CHECK CRT
NO
IC671 (1) 10V p-p ?
YES
CHECK • Q601 • FBT • 79.5V line
NO
IC671 (4) 5V p-p ?
YES
CHECK IC671
NO
CHECK SSP CARD
IC1381 (1) 8.7V ?
NO
CHECK • IC1381 • IC1401 (14) <BRIGHTNESS>
YES
Q1380 (C) 12V ?
YES
CHECK Q1382
NO
Q1380 (B) 11.4V ?
NO
CHECK • Q1381 • SSP CARD (15) <VIDEO OFF>
YES
CHECK Q1380

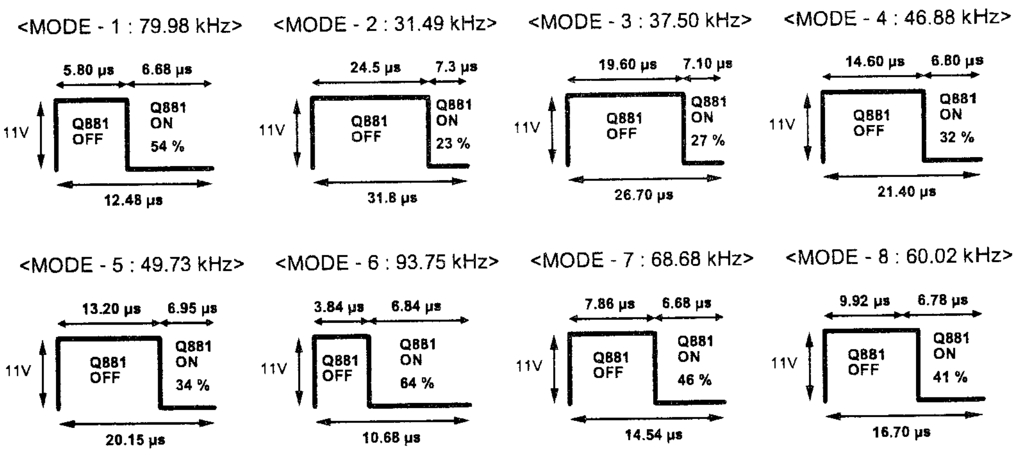
INCORRECT H SIZE


Q550 (C)
1100V P-P ?
YES
CHECK
• DY
• S CORECTION CIRCUIT (Refer to C_SEL Voltage)
NO
Q550 (B)
12V P-P ?
NO
CHECK
• Q549
• IC580
YES
T542 (P4)
CORECT ?
YES
CHECK Q550
NO
IC850 (1)
CORECT ?
YES
CHECK
• Q881
• 210V LINE
NO
IC850 (12)
3V ?
NO
CHECK
SSP CARD (36)
<H SIZE DAC>
YES
CHECK IC850

Voltage of T542 (P4)

	f H	Value
MODE - 1	79.98 kHz	119.7V
MODE - 2	31.49 kHz	47.2V
MODE - 3	37.50 kHz	57.7V
MODE - 4	46.88 kHz	69.7V
MODE - 5	49.73 kHz	76.0V
MODE - 6	93.75 kHz	142.1V
MODE - 7	68.68 kHz	100.3V
MODE - 8	60.02 kHz	87.9V

IC850 (1) OUTPUT

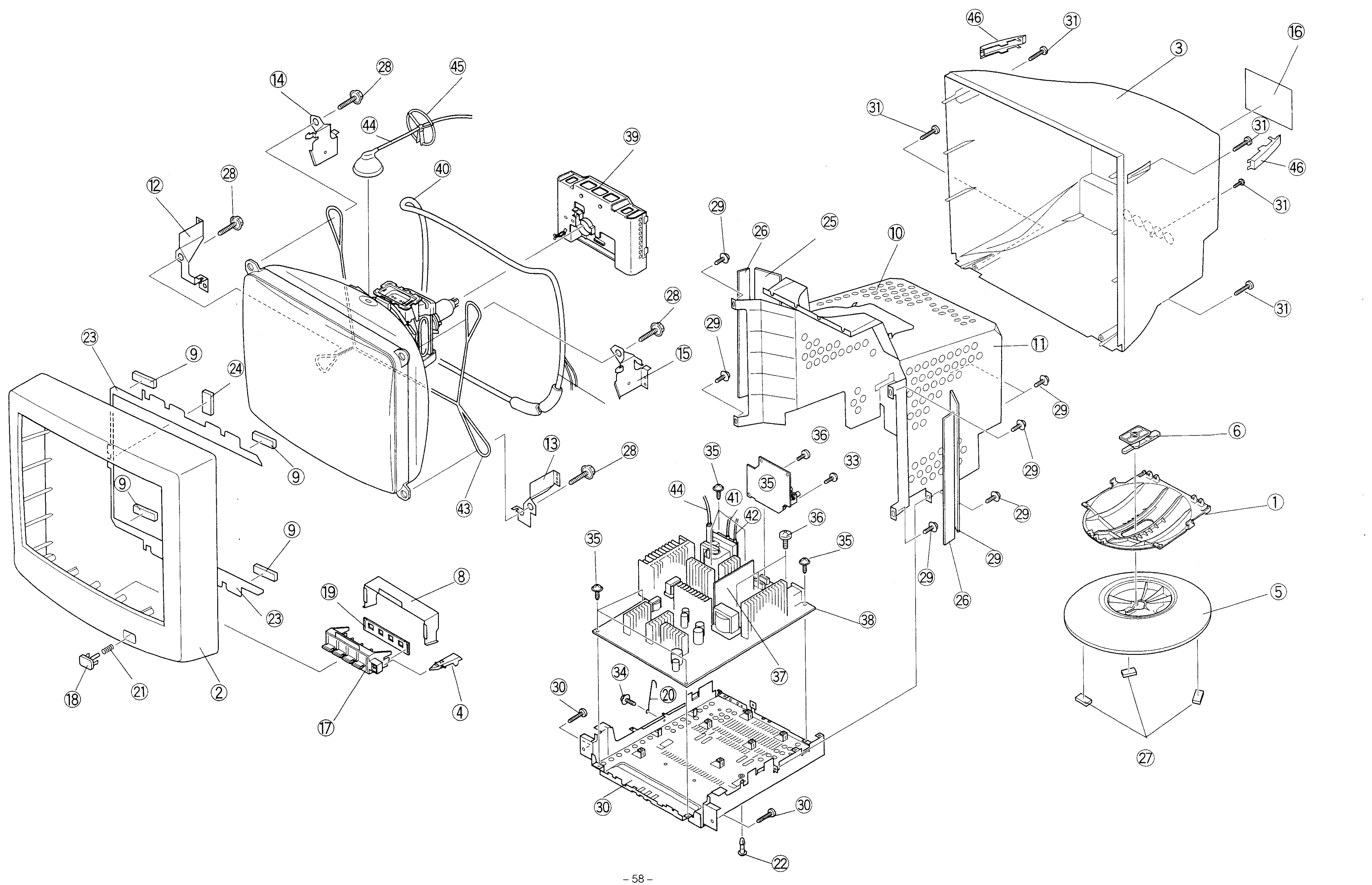

<MODE - 1 : 79.98 kHz>
5.80 µs
6.68 µs
11V
Q881 OFF
Q881 ON
54 %
12.48 µs
<MODE - 2 : 31.49 kHz>
24.5 µs
7.3 µs
11V
Q881 OFF
Q881 ON
23 %
31.8 µs
<MODE - 3 : 37.50 kHz>
19.60 µs
7.10 µs
11V
Q881 OFF
Q881 ON
27 %
26.70 µs
<MODE - 4 : 46.88 kHz>
14.60 µs
6.80 µs
11V
Q881 OFF
Q881 ON
32 %
21.40 µs
<MODE - 5 : 49.73 kHz>
13.20 µs
6.95 µs
11V
Q881 OFF
Q881 ON
34 %
20.15 µs
<MODE - 6 : 93.75 kHz>
3.84 µs
6.84 µs
11V
Q881 OFF
Q881 ON
64 %
10.68 µs
<MODE - 7 : 68.68 kHz>
7.86 µs
6.68 µs
11V
Q881 OFF
Q881 ON
46 %
14.54 µs
<MODE - 8 : 60.02 kHz>
9.92 µs
6.78 µs
11V
Q881 OFF
Q881 ON
41 %
16.70 µs

C_SEL_1 / C_SEL_2
C_SEL_3 / C_SEL_4 VOLTAGE

	f H	Q564 (B) C_SEL_1	Q562 (B) C_SEL_2	Q560 (B) C_SEL_3	Q575 (B) C_SEL_4
MODE - 1	79.98 kHz	0V	4.8V	4.8V	4.8V
MODE - 2	31.49 kHz	0V	0V	0V	0V
MODE - 3	37.50 kHz	4.8V	4.8V	4.8V	0V
MODE - 4	46.88 kHz	4.8V	0V	0V	4.8V
MODE - 5	49.73 kHz	0V	4.8V	0V	4.8V
MODE - 6	93.75 kHz	4.8V	4.8V	4.8V	4.8V
MODE - 7	68.68 kHz	4.8V	0V	4.8V	4.8V
MODE - 8	60.02 kHz	0V	0V	4.8V	4.8V

MEMO

EXPLODED VIEW



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REPLACEMENT PARTSA LIST

Important Safety Notice

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components use only manufacture's specified parts.

RESISTOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Carbon	F	± 1%
F	Fuse	J	± 5%
M	Metal Oxide	K	± 10%
S	Solid	M	± 20%
W	Wire Wound	G	± 2%

Part No. Description
Example: ERD25TJ104Ⓒ 100KⒿ 1/4W

CAPACITOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	C	± 0.25pF
E	Electrolytic	D	± 0.5pF
P	Polyester	F	± 1pF
S	Styrol	J	± 5%
T	Tantalum	K	± 10%
PP	Polypropylene	L	± 15%
		M	± 20%
		P	+100% – 0%
		Z	+80% – 20%

Part No. Description
Example: ECKF1H103ZFⒸ 0.01μF Ⓩ 50V

NOTE

When ordering a flyback transformer, the focus lead (red / white) and the anode lead should also be ordered, without fail.

	Ref.No.	Part No.	Description
		CABINET & MAIN PARTS	
⚠	1	TKYA01201A	BOTTOM CABINET
⚠	2	TTYA10801-1	ESCUTCHEON
⚠	3	TKUC05301	REAR COVER
⚠	4	TKKC5074	LED GUIDE
⚠	46	TKKL5048	BLIND COVER
⚠		TKK859745-9	CONNECTOR COVER
⚠	5	TKK859979-21	PEDESTAL
⚠	6	TKK859980	CENTER POST
	7	TUAA07401-1	BOTTOM PLATE
	8	TUXA103	CHASSIS BRACKET
	9	TSPX006	RADIATOR
	10	TUCC5378	SHIELD CASE
	11	TUCC5379	SHIELD CASE(REAR)
	12	TUCX5058	EARTH METAL(R-UNDER)
	13	TUCX5059	EARTH METAL(L-UNDER)
	14	TUCX5060	EARTH METAL(R-UPPER)
	15	TUCX5061	EARTH METAL(L-UPPER)
⚠	16	TBMD210-1	MODEL NAME LABEL
⚠	17	TBXA17701	KNOB(CONTROL)
⚠	18	TBXA17801	KNOB(POWER SWITCH)
⚠	19	TBYA022	KNOB GUIDE
	20	TESA062	SPRING(HEAT SINK)
	21	TESD011	SPRING(POWER SWITCH)
⚠	22	TMME034	PC BOARD SPACER
⚠		TMME052	LEAD CLAMPER(SMALL)
⚠	45	TMM15404-1	SPACER RING
⚠		TMM6463	CLAMPER(MIDDLE)
		TMM6496	CLAMPER
⚠		TMM7468	CLAMPER
⚠		TMM82403	CLAMPER
⚠		TMXJ005	POWER SWITCH JOINT
⚠		TMKE095	FERRITE STICK(STRONG)
⚠		TMKE126	FERRITE STICK(WEAK)
⚠	23	TMKG035	SPONGE(FOR RADIATOR)

	Ref.No.	Part No.	Description
⚠	24	TMKG099	SPONGE
⚠		TMKG113	CRT RUBBER
⚠	25	TMKK066	CUSHION(BIG)
⚠	26	TMKK067	CUSHION(SMALL)
		TMKX073	PROTECTION TAPE
⚠	27	TMK84990	SET LEG
		THTF002U	SCREW(FOR AC INLET)
	28	THT1027	SCREW(FOR CRT)
	29	THT1069	SCREW(FOR SHIELD CASE)
	30	XTN5+16LY	SCREW
	31	XTN5+25J	SCREW
	32	XTV3+10A	SCREW
	33	XTV3+6A	SCREW
	34	XTV3+8J	SCREW
	35	XTW3+8T	SCREW
	36	XYA4+EF8	SCREW
	37	TNPA1147-21	PC BOARD W/COMPONENT(SSP)
⚠	38	TNPH0205-21	PC BOARD W/COMPONENT (MAIN)
	39	TXANP39S54VM	PC BOARD W/COMPONENT (VIDEO INPUT/CRT/TCO)
⚠	40	TSPA071	DEGAUSS COIL
⚠		TSPX008	VLMF COIL
⚠		TSXA023	POWER CORD<-M>
⚠		TSXA076	POWER CORD<-E>
		TSXF051-1	SIGNAL CORD
⚠		TSXL081	FLAT CORD(7P)
⚠		TSXL082	FLAT CORD(20P)
⚠	41	TSXX092	FOCUS LEAD(RED)
⚠	42	TSXX093	FOCUS LEAD(WHITE)
⚠		TSXX073-1	1P TERMINAL ASSY(BLACK)
⚠		TSXX094	1P TERMINAL ASSY(RED)
⚠		TSXX095	1P CONNECTOR ASSY(BLACK)
⚠		TSXX110	4P CONNECTOR ASSY
⚠	43	TXA3A19S54VM	CRT EARTH LEAD
		TSMA002	MAGNET
⚠	44	TLFN04350	ANODE LEAD

	Ref.No.	Part No.	Description
		T4F31519Q	POLYESTER TAPE(50M)
		TPCA60701	OUTER CARTON
		TXAPD1D9S54B	FILLER(BOTTOM)
		TXAPD1D9S54T	FILLER(TOP)
		TPE814109-2	SET COVER
		TQE8513-2	FUN BAG COVER
		TQBE0151	INSTRUCTION BOOK(TC095)
⚠		TQBE0236	INSTRUCTION BOOK
		TQBE7026	REVISION SHEET
		TQDE14010	REGISTRATION CARD<-M>
		TQFA343	BAR CODE LABEL
		TQFA360	WARNING LABEL
		TQFA681	PTB LABEL(INNER)
		TQF83825-6	SERIAL NO. LABEL
		TQF85363-1	CARTON LABEL<-M>
		TQF85363-8	CARTON LABEL<-E>
⚠		TQF86608	EARTH CAUTION LABEL
		I.C	
	IC31	AN5768	IC
	IC101	CU32110A-104	IC
	IC102	TVRB033-2	IC
	IC103	TVSA0066	IC
	IC104	24LC08BTISN	IC
	IC106	LF347MX	IC
	IC107	LF347MX	IC
	IC111	TC74HC14AF	IC
	IC120	NJM2904M	IC
	IC231	TVSA0262	IC
	IC491	STV9379	IC
	IC510	LA6500-FA	IC
	IC512	NJM2904M	IC
	IC580	AN6531	IC
	IC671	TVSA0216	HYBRID IC
	IC672	NJM2904M	IC
	IC674	TL431AIZ	IC
	IC821	M62281FP	IC
	IC841	MIP0222SCL	IC
	IC850	M62502FP	IC
	IC851	L78LR05C	IC
	IC852	TL431AIZ	IC
	IC1301	M52755SP	IC
	IC1302	M52741SP701	IC
⚠	IC1303	VP463	IC
	IC1305	STK190-110	HYBRID IC
	IC1331	NJM2904M	IC
	IC1381	NJM2904M	IC
	IC1401	LSC4385DW2	IC
		TRANSISTORS	
	Q11	2SK1848	TRANSISTOR
	Q12	2SD1819AQ	TRANSISTOR
	Q13	2SC4080DETD	TRANSISTOR
	Q14	2SC4412-45	TRANSISTOR
	Q15	2SA1682-45	TRANSISTOR
	Q106	2SC3938R	TRANSISTOR
	Q110	2SC3938R	TRANSISTOR
	Q249	2SC3938R	TRANSISTOR
	Q280	2SA1739R	TRANSISTOR
	Q379	2SA1767Q	TRANSISTOR
	Q380	2SC4002E-AA	TRANSISTOR
	Q381	2SA1576A	TRANSISTOR

	Ref.No.	Part No.	Description
	Q382	2SC1473AR	TRANSISTOR
	Q383	2SD1264PLB	TRANSISTOR
	Q384	2SB940PLB	TRANSISTOR
	Q483	2SB1434R	TRANSISTOR
	Q510	2SC1473AR	TRANSISTOR
	Q535	2SD1820AR	TRANSISTOR
	Q536	2SB1219AQ	TRANSISTOR
	Q537	UN5211AI	TRANSISTOR
	Q549	IRLI520NLF43	TRANSISTOR
	Q550	2SC5423002FD	TRANSISTOR
	Q560	UN5211AI	TRANSISTOR
	Q562	UN5211AI	TRANSISTOR
	Q564	UN5211AI	TRANSISTOR
	Q570	2SK2350	TRANSISTOR
	Q571	2SK3003LF639	TRANSISTOR
	Q572	2SK3003LF639	TRANSISTOR
	Q575	2SC4081R	TRANSISTOR
	Q601	FS10KM-12	TRANSISTOR
	Q602	UN5111AI	TRANSISTOR
	Q603	UN5211AI	TRANSISTOR
	Q655	2SB1218AQ	TRANSISTOR
	Q820	2SA733Q	TRANSISTOR
	Q821	2SK2148	TRANSISTOR
	Q827	2SA733Q	TRANSISTOR
	Q851	UN5211AI	TRANSISTOR
	Q852	2SB1435R	TRANSISTOR
	Q853	UN5211AI	TRANSISTOR
	Q854	2SB1435R	TRANSISTOR
	Q855	2SD1819AQ	TRANSISTOR
	Q856	2SD1664Q	TRANSISTOR
	Q859	UN5211AI	TRANSISTOR
	Q860	2SC3938R	TRANSISTOR
	Q861	2SD2374P	TRANSISTOR
	Q864	2SB1219AQ	TRANSISTOR
	Q871	2SB1322AQ	TRANSISTOR
	Q881	2SJ306MRB	TRANSISTOR
	Q882	2SB1219AQ	TRANSISTOR
	Q890	2SK2273	TRANSISTOR
	Q901	2SD1949Q	TRANSISTOR
	Q902	UN5111AI	TRANSISTOR
	Q903	UN5211AI	TRANSISTOR
	Q1021	2SC4270	TRANSISTOR
	Q1035	2SC3811R	TRANSISTOR
	Q1065	2SC4412-45	TRANSISTOR
	Q1121	2SC4270	TRANSISTOR
	Q1135	2SC3811R	TRANSISTOR
	Q1165	2SC4412-45	TRANSISTOR
	Q1221	2SC4270	TRANSISTOR
	Q1235	2SC3811R	TRANSISTOR
	Q1265	2SC4412-45	TRANSISTOR
	Q1345	UN5111AI	TRANSISTOR
	Q1346	2SA1739R	TRANSISTOR
	Q1357	UN5211AI	TRANSISTOR
	Q1380	2SA733Q	TRANSISTOR
	Q1381	UN5211AI	TRANSISTOR
	Q1382	2SA1767Q	TRANSISTOR
	Q1383	2SC3938R	TRANSISTOR
	Q1384	2SC3757Q	TRANSISTOR
	Q1385	2SD1819AQ	TRANSISTOR
		DIODES	
	D10	MA8150M	DIODE

Ref.No.	Part No.	Description
D11	MA153A	DIODE
D13	MA174	DIODE
D14	MA111	DIODE
D110	DTZTT115R6B	DIODE
D129	MA357	DIODE
D231	MA4056NM	DIODE
D232	MA4056NM	DIODE
D233	MA4056NM	DIODE
D234	MA4056NM	DIODE
D250	MA4056NM	DIODE
D251	MA4056NM	DIODE
D351	MA111	DIODE
D352	MA111	DIODE
D366	MA199	DIODE
D410	ERA1502	DIODE
D411	ERA1502	DIODE
D412	MA167	DIODE
D414	MA728	DIODE
D440	MA4051NM	DIODE
D501	MA4051H	DIODE
D550	FMQ-G5GSLF	DIODE
D551	ERB83-004	DIODE
D552	MA167	DIODE
D553	MA8150M	DIODE
D554	MA111	DIODE
D574	MA188	DIODE
D575	MA4047NM	DIODE
D577	MA111	DIODE
D602	ESAC39M-06D	DIODE
D604	ERA92-02	DIODE
D605	ERA92-02	DIODE
D651	MA167	DIODE
D652	TVSAG01	DIODE
D653	TVSAG01	DIODE
D654	MA111	DIODE
D655	MA4240NM	DIODE
D656	MA4240NM	DIODE
D673	MA165	DIODE
D821	RBV606	DIODE
D822	ERA34-10	DIODE
D823	ERA82-004	DIODE
D824	MA4300NM	DIODE
D825	MA113	DIODE
D826	MA165	DIODE
D833	MA4082NM	DIODE
D841	EG01Z	DIODE
D842	MA4180NM	DIODE
D843	ERA34-10	DIODE
D850	MA111	DIODE
D851	ERC81-006	DIODE
D852	MA4075NM	DIODE
D855	MA4091NM	DIODE
D856	CB903-4	DIODE
D857	MA111	DIODE
D858	MA111	DIODE
D860	MA4130NL	DIODE
D861	TVSRG2A	DIODE
D862	FML-S16S	DIODE
D863	TVSRG2	DIODE
D864	FML-G02S	DIODE
D865	ERC30-02	DIODE
D866	ERC30-02	DIODE
D867	TVSRG2A	DIODE
D868	RN3Z014-305	DIODE
D869	MA111	DIODE
D870	MA4056NM	DIODE
D871	MA4100NL	DIODE
D872	MA4051L	DIODE
D873	MA165	DIODE
D874	ERA1502	DIODE
D875	MA4051L	DIODE
D891	MA111	DIODE
D892	TVSD0003	DIODE
D897	MA8150M	DIODE
D901	MA111	DIODE
D902	TVSD0003	DIODE
D940	SLP3118C51	DIODE(LED)
D941	SLP6118C51	DIODE(LED)
D953	MA4056NM	DIODE
D978	MA4056NM	DIODE
D979	MA4056NM	DIODE
D993	MA8056H	DIODE
D994	MA8056H	DIODE
D995	MA8056H	DIODE
D996	MA8056H	DIODE
D1001	MA157A	DIODE
D1004	MA111	DIODE
D1005	MA111	DIODE
D1011	MA157A	DIODE
D1051	MA2Z001	DIODE
D1052	MA2Z001	DIODE
D1065	MA167A	DIODE
D1101	MA157A	DIODE
D1104	MA111	DIODE
D1105	MA111	DIODE
D1108	MA142WK	DIODE
D1111	MA157A	DIODE
D1151	MA2Z001	DIODE
D1152	MA2Z001	DIODE
D1165	MA167A	DIODE
D1201	MA157A	DIODE
D1204	MA111	DIODE
D1205	MA111	DIODE
D1211	MA157A	DIODE
D1251	MA2Z001	DIODE
D1252	MA2Z001	DIODE
D1265	MA167A	DIODE
D1322	MA4056NM	DIODE
D1323	MA4056NM	DIODE
D1324	ERA82-004	DIODE
D1331	MA167A	DIODE
D1340	MA4051NM	DIODE
D1341	MA4051NM	DIODE
D1342	MA4051NM	DIODE
D1343	ERA18-04	DIODE
D1345	MA4056NM	DIODE
D1381	MA111	DIODE
D1382	EU02Z	DIODE
D1383	MA4100NL	DIODE
D1384	MA111	DIODE
J913	MA4220NH	DIODE

	Ref.No.	Part No.	Description			
		COIL & TRANSFORMERS				
	L101	ELJFA5R6JB	CHIP COIL			
⚠	L501	ELC18B272G	CHOKE COIL			
	L503	TLH85815T	COIL			
	L530	ELEY102KA	PEAKING COIL			
	L532	TLH85815T	COIL			
	L533	TSK8029	FERRITE CORE			
	L550	EXCELSA35T	LC COMBINATION			
	L551	EXCELSA35T	LC COMBINATION			
	L552	EXCELSA35T	LC COMBINATION			
⚠	L577	ELHKLB021B	COIL			
⚠	L578	ELHKLB047B	H. LINEARITY COIL			
	L601	TLUADTB4R7M	PEAKING COIL			
	L602	TLUACNB220K	PEAKING COIL			
	L603	TSK8029	FERRITE CORE			
	L605	TSK8029	FERRITE CORE			
	L680	TSK8029	FERRITE CORE			
⚠	L801	ELF18D666Y	LINE FILTER			
⚠	L802	ELF18D666Y	LINE FILTER			
	L820	EXCELDR35C	LC COMBINATION			
	L821	EXCELDR35C	LC COMBINATION			
⚠	L850	TLP85708R	CHOKE COIL			
	L861	TSK8029	FERRITE CORE			
	L862	TSK8029	FERRITE CORE			
	L863	TSK8029	FERRITE CORE			
	L864	TSK8029	FERRITE CORE			
	L865	TSK8029	FERRITE CORE			
	L866	TSK8029	FERRITE CORE			
	L868	TSK8029	FERRITE CORE			
	L881	TLUACNB102J	PEAKING COIL			
	L898	TLUACNB102J	PEAKING COIL			
	L1035	ELEXH1ROKA	PEAKING COIL			
	L1056	ELEXHR22KA	PEAKING COIL			
	L1135	ELEXH1ROKA	PEAKING COIL			
	L1156	ELEXHR22KA	PEAKING COIL			
	L1235	ELEXH1ROKA	PEAKING COIL			
	L1256	ELEXHR22KA	PEAKING COIL			
	L1320	EXCELDR35C	LC COMBINATION			
	L1321	EXCELDR35C	LC COMBINATION			
	L1322	TSKA092	FERRITE CORE			
	L1323	TSKA092	FERRITE CORE			
	L1324	EXCELDR35C	LC COMBINATION			
	L1327	ELEMH221KA	PEAKING COIL			
	L1340	EXCELDR35C	LC COMBINATION			
	L1341	EXCELDR35C	LC COMBINATION			
	L1352	EXCELDR35C	LC COMBINATION			
	L1371	EXCELDR35C	LC COMBINATION			
	L1401	ELEXH151KA	PEAKING COIL			
⚠	T351	TLHG010	D.A.F. TRANSFORMER			
⚠	T541	ETH19K188AM	H. DRIVE TRANSFORMER			
⚠	T542	ETS29AC1Z9AC	TRANSFORMER			
⚠	T601	ETF39L102AZ	FLYBACK TRANSFORMER			
⚠	T821	TLPA061	POWER TRANSFORMER			
⚠	T823	TLPA039	POWER TRANSFORMER(SUB)			
		CAPACITORS				
	C11	ECQV1H334JL	P	0.33UF	J	50V
	C13	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C14	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C16	ECUX1H561JCX	C	560PF	J	50V

	Ref.No.	Part No.	Description			
	C17	TACBU2E104KT	C	0.1UF	K	250V
	C31	ECEA1HGE4R7	E	4.7UF		50V
	C32	ECEA1HGE4R7	E	4.7UF		50V
	C51	ECJ2VF1C105Z	C	1UF	Z	16V
	C52	ECJ2VF1C105Z	C	1UF	Z	16V
	C53	ECJ2VF1C105Z	C	1UF	Z	16V
	C55	ECJ2VF1C105Z	C	1UF	Z	16V
	C56	ECJ2VF1C105Z	C	1UF	Z	16V
	C58	ECJ2VF1C105Z	C	1UF	Z	16V
	C101	ECUX1H150JCN	C	15PF	J	50V
	C102	ECUX1H150JCN	C	15PF	J	50V
	C104	ECUX1H103KBG	C	0.01UF	K	50V
	C110	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C111	ECA0JHG471	E	470UF		6.3V
	C113	ECUX1C104KBX	C	0.1UF	K	16V
	C114	ECUX1H102KBN	C	1000PF	K	50V
	C115	ECUX1H102KBN	C	1000PF	K	50V
	C117	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C118	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C119	ECUX1H222JCX	C	2200PF	J	50V
	C122	ECUX1C105KBW	C	1UF	K	16V
	C123	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C124	ECUX1H103KBG	C	0.01UF	K	50V
	C125	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C126	ECUX1H472KBG	C	4700PF	K	50V
	C130	ECEV1CG100G	E	10UF		16V
	C131	ECA0JHG471	E	470UF		6.3V
	C132	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C133	ECEV1CG100G	E	10UF		16V
	C134	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C137	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C138	ECEV1CG100G	E	10UF		16V
	C139	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C140	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C141	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C143	ECUX1H101JCG	C	100PF	J	50V
	C144	ECUX1H101JCG	C	100PF	J	50V
	C145	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C151	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C152	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C153	ECUX1C224KBX	C	0.22UF	K	16V
	C154	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C155	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C163	ECUX1H151JCG	C	150PF	J	50V
	C164	ECUX1H151JCG	C	150PF	J	50V
	C166	ECUX1H151JCG	C	150PF	J	50V
	C167	ECUX1H151JCG	C	150PF	J	50V
	C168	ECUX1H151JCG	C	150PF	J	50V
	C169	ECUX1C224KBX	C	0.22UF	K	16V
	C170	ECUX1H151JCG	C	150PF	J	50V
	C171	ECEV1CG470G	E	47UF		16V
	C173	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C174	ECA1CHG471	E	470UF		16V
	C179	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C183	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C184	ECEV1CG100G	E	10UF		16V
	C185	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C186	ECEV1CG100G	E	10UF		16V
	C187	ECUX1H562JUW	C	5600PF	J	50V
	C188	ECUX1H562JUW	C	5600PF	J	50V
	C189	ECUX1H562JCW	C	5600PF	J	50V
	C190	ECUX1H562JCW	C	5600PF	J	50V

	Ref.No.	Part No.	Description			
	C196	ECUX1H101JCG	C	100PF	J	50V
	C231	ECUX1H103KBG	C	0.01UF	K	50V
	C255	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C256	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C257	ECUX1H271JCG	C	270PF	J	50V
	C258	ECUX1H121JCG	C	120PF	J	50V
	C259	ECUX1H150JCN	C	15PF	J	50V
	C280	ECA1HEN010	E	1UF		50V
	C281	ECUX1H103KBG	C	0.01UF	K	50V
	C352	ECA2AHG100	E	10UF		100V
	C353	ECQV1474JZ	P	0.47UF	J	100V
	C369	ECA1HHG470	E	47UF		50V
	C370	ECUX1H361JCG	C	360PF	J	50V
	C371	ECKD2H471KB5	C	470PF	K	500V
	C372	ECUX1H080DCN	C	8PF	D	50V
	C373	ECEA1HGE100	E	10UF		50V
	C374	ECEA1HGE100	E	10UF		50V
	C440	ECA1EHG222	E	2200UF		25V
	C441	TACCC1H100MT	E	10UF		50V
	C442	ECUX1H102JCX	C	1000PF	J	50V
	C444	ECEA1HGE101	E	100UF		50V
	C446	ECUX1H471JCX	C	470PF	J	50V
	C447	ECA1EHG222	E	2200UF		25V
	C449	ECUX1H103KBG	C	0.01UF	K	50V
	C450	ECQV1224JM	P	0.22UF	J	100V
	C451	TACBU2E683KT	C	0.068UF	K	250V
	C501	TACBH2E224MT	C	0.22UF	M	250V
	C504	ECA2AHG100	E	10UF		100V
	C505	ECJ2VF1C105Z	C	1UF	Z	16V
	C506	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C508	ECUX1E473KBX	C	0.047UF	K	25V
	C530	ECA2EHG2R2	E	2.2UF		250V
	C549	TACBN2A682KT	C	6800PF	K	100V
	C551	ECA1VHG101	E	100UF		35V
	C553	TACDB6T162HT	PP	1600PF	H	1.5KV
	C554	TACDB6T162HT	PP	1600PF	H	1.5KV
	C555	ECQE2335KF	P	3.3UF	K	200V
	C556	TACDB6T162HT	PP	1600PF	H	1.5KV
	C561	TACDA2E434HT	PP	0.43UF	H	250V
	C563	TACDA2E244HT	PP	0.24UF	H	250V
	C565	TACDA2E104HT	PP	0.1UF	H	250V
	C567	TACDA2E125HT	PP	1.2UF	H	250V
	C568	TACDA2E114HT	PP	0.11UF	H	250V
	C569	TACDA2E114HT	PP	0.11UF	H	250V
	C578	ECA1VHG470	E	47UF		35V
	C590	ECUX1H103KBG	C	0.01UF	K	50V
	C601	ECQF6152JZ	PP	1500PF	J	600V
	C602	ECQF6392JZ	PP	3900PF	J	600V
	C603	ECUX1H104KBW	C	0.1UF	K	50V
	C651	ECEA1HGE220	E	22UF		50V
	C652	ECA2EHG100	E	10UF		250V
	C653	ECA2CHG100	E	10UF		160V
	C654	ECA2CHG4R7	E	4.7UF		160V
	C655	ECQV1H225JL	P	2.2UF	J	50V
	C656	ECEA1HGE100	E	10UF		50V
	C671	ECEA25V3R3T	E	3.3UF		25V
	C672	ECEA25V4R7T	E	4.7UF		25V
	C683	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C684	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C705	ECUX1H273KBX	C	0.027UF	K	50V
⚠	C801	ECQU2A334MVZ	PP	0.33UF	M	250V
⚠	C804	ECKDRS472MEY	C	4700PF	M	
⚠	C805	ECKDRS472MEY	C	4700PF	M	
⚠	C807	ECQU2A224MNF	PP	0.22UF	M	250V
	C819	ECQE2154KF	P	0.15UF	K	200V
	C820	ECUX1C105KBW	C	1UF	K	16V
	C821	TAC1094Z391A	E	390UF		400V
	C822	ECQE2154KF	P	0.15UF	K	200V
	C823	ECKD3A271KBP	C	270PF	K	1KV
	C825	ECEA1VGE330	E	33UF		35V
	C828	ECUX1H222KBN	C	2200PF	K	50V
⚠	C831	ECKDRS332MEY	C	3300PF	M	
⚠	C832	ECKDRS332MEY	C	3300PF	M	
	C833	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C834	ECUX1H222KBN	C	2200PF	K	50V
	C835	ECQB1H222JF	P	2200PF	J	50V
	C836	ECUX1H221KBN	C	220PF	K	50V
	C837	ECEA1HGE2R2	E	2.2UF		50V
	C839	ECUX1H222KBN	C	2200PF	K	50V
	C840	ECKD2H102KB5	C	1000PF	K	500V
	C841	ECEA1EGE101	E	100UF		25V
	C842	ECUX1H104ZFW	C	0.1UF	Z	50V
	C843	ECA1JHG330	E	33UF		63V
	C844	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C845	ECEA1EGE100	E	10UF		25V
	C846	ECUX1H822KBG	C	8200PF	K	50V
	C851	TACCC1A222MT	E	2200UF		10V
	C852	ECQV1474JZ	P	0.47UF	J	100V
	C853	ECEA1CGE470	E	47UF		16V
	C858	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C859	ECA2EHG101	E	100UF		250V
	C860	TACBK2A224MT	C	0.22UF	M	100V
	C861	ECOS2EA221CB	E	220UF		250V
	C862	TACCC2A471MB	E	470UF		100V
	C863	TAC11035102T	E	1000UF		35V
	C864	TACCC1E222MT	E	2200UF		25V
	C865	ECEA1CGE471	E	470UF		16V
	C866	ECEA1CGE471	E	470UF		16V
	C867	TACBK2A224MT	C	0.22UF	M	100V
	C868	ECEA1EGE222	E	2200UF		25V
	C869	ECA1CHG331	E	330UF		16V
	C870	ECA1HHG100	E	10UF		50V
	C872	ECUX1C105KBW	C	1UF	K	16V
	C874	ECA1HHG470	E	47UF		50V
	C875	TACCB2A331MA	E	330UF		100V
	C876	ECUX1H103KBG	C	0.01UF	K	50V
	C877	ECA1HHG220	E	22UF		50V
	C878	ECA1CHG101	E	100UF		16V
	C879	ECA1EHG470	E	47UF		25V
	C880	ECA1HHG220	E	22UF		50V
	C881	ECA1HHG100	E	10UF		50V
	C882	ECEA1HGE100	E	10UF		50V
	C883	ECQV1H224JL	P	0.22UF	J	50V
	C884	ECUX1H102KBN	C	1000PF	K	50V
	C885	TACCJ152P500	C	1500PF		500V
	C886	ECUX1H222KBN	C	2200PF	K	50V
	C887	ECUX1H681KBN	C	680PF	K	50V
	C888	TACBU2E333KT	C	0.033UF	K	250V
	C889	ECQE2684KF	P	0.68UF	K	200V
	C891	TAC1102A331T	E	330UF		100V
	C893	ECUX1H122JCX	C	1200PF	J	50V
	C894	ECJ2VF1H104Z	C	0.1UF	Z	50V
	C896	ECUX1E104KBX	C	0.1UF	K	25V
	C897	ECUX1H561JCH	C	560PF	J	50V

Ref.No.	Part No.	Description			
C898	ECA2EHG470	E	47UF		250V
C899	ECUX1E104KBX	C	0.1UF	K	25V
C902	ECUX1H104ZFW	C	0.1UF	Z	50V
C1002	ECUX1H103KBG	C	0.01UF	K	50V
C1003	TACCL1C476MT	E	470UF		16V
C1005	ECUX1H100CCN	C	10PF	C	50V
C1012	ECUX1H103KBG	C	0.01UF	K	50V
C1013	TACCL1C476MT	E	470UF		16V
C1015	ECUX1H103KBG	C	0.01UF	K	50V
C1020	ECUX1H103KBG	C	0.01UF	K	50V
C1023	ECUX1H103KBG	C	0.01UF	K	50V
C1025	ECUX1H103KBG	C	0.01UF	K	50V
C1026	ECA1HEN4R7	E	4.7UF		50V
C1027	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1042	ECUX1H430JCG	C	43PF	J	50V
C1043	ECUX1H120JCN	C	12PF	J	50V
C1050	TACBN2A472KT	C	4700PF	K	100V
C1052	ECEA2AGE4R7	E	4.7UF		100V
C1053	TACBH2A474MT	C	0.47UF	M	100V
C1055	ECKD2H102KB5	C	1000PF	K	500V
C1065	TACBU2E683KT	C	0.068UF	K	250V
C1066	ECEA2AGE010	E	1UF		100V
C1102	ECUX1H103KBG	C	0.01UF	K	50V
C1103	TACCL1C476MT	E	470UF		16V
C1105	ECUX1H100CCN	C	10PF	C	50V
C1112	ECUX1H103KBG	C	0.01UF	K	50V
C1113	TACCL1C476MT	E	470UF		16V
C1115	ECUX1H103KBG	C	0.01UF	K	50V
C1120	ECUX1H103KBG	C	0.01UF	K	50V
C1123	ECUX1H103KBG	C	0.01UF	K	50V
C1125	ECUX1H103KBG	C	0.01UF	K	50V
C1126	ECA1HEN4R7	E	4.7UF		50V
C1127	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1142	ECUX1H430JCG	C	43PF	J	50V
C1143	ECUX1H120JCN	C	12PF	J	50V
C1150	TACBN2A472KT	C	4700PF	K	100V
C1152	ECEA2AGE4R7	E	4.7UF		100V
C1153	TACBH2A474MT	C	0.47UF	M	100V
C1155	ECKD2H102KB5	C	1000PF	K	500V
C1165	TACBU2E683KT	C	0.068UF	K	250V
C1166	ECEA2AGE010	E	1UF		100V
C1202	ECUX1H103KBG	C	0.01UF	K	50V
C1203	TACCL1C476MT	E	470UF		16V
C1205	ECUX1H100CCN	C	10PF	C	50V
C1212	ECUX1H103KBG	C	0.01UF	K	50V
C1213	TACCL1C476MT	E	470UF		16V
C1215	ECUX1H103KBG	C	0.01UF	K	50V
C1220	ECUX1H103KBG	C	0.01UF	K	50V
C1223	ECUX1H103KBG	C	0.01UF	K	50V
C1225	ECUX1H103KBG	C	0.01UF	K	50V
C1226	ECA1HEN4R7	E	4.7UF		50V
C1227	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1242	ECUX1H430JCG	C	43PF	J	50V
C1243	ECUX1H120JCN	C	12PF	J	50V
C1250	TACBN2A472KT	C	4700PF	K	100V
C1252	ECEA2AGE4R7	E	4.7UF		100V
C1253	TACBH2A474MT	C	0.47UF	M	100V
C1255	ECKD2H102KB5	C	1000PF	K	500V
C1265	TACBU2E683KT	C	0.068UF	K	250V
C1266	ECEA2AGE010	E	1UF		100V
C1301	TACCL1C476MT	E	470UF		16V
C1303	TACCL1C476MT	E	470UF		16V
C1304	TACCL1C476MT	E	470UF		16V
C1305	ECUX1H103KBG	C	0.01UF	K	50V
C1307	TACCL1C476MT	E	470UF		16V
C1320	ECEA1CGE470	E	47UF		16V
C1321	ECUX1H103KBG	C	0.01UF	K	50V
C1322	EEUFC1E560	E	56UF		25V
C1323	ECUX1H103KBG	C	0.01UF	K	50V
C1326	EEUFC1E560	E	56UF		25V
C1327	ECEA1HGE101	E	100UF		50V
C1328	ECA1CHG221	E	220UF		16V
C1329	ECEA1AGE101	E	100UF		10V
C1332	ECJ2VF1E224Z	C	0.22UF	Z	25V
C1333	ECUX1H103KBG	C	0.01UF	K	50V
C1337	ECEA1HGE100	E	10UF		50V
C1338	ECUX1H221KBN	C	220PF	K	50V
C1339	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1342	ECEA2AGE220	E	22UF		100V
C1345	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1346	ECEA1EGE100	E	10UF		25V
C1348	ECEA2AGE100	E	10UF		100V
C1351	ECKD2H471KB5	C	470PF	K	500V
C1352	TACCJ102P500	C	1000PF		500V
C1365	ECCD2H100D	C	10PF	D	500V
C1370	TACBJ2H102KT	C	1000PF	K	500V
C1371	ECKD3A272KBP	C	2700PF	K	1KV
C1372	TACBJ2J222KT	C	2200PF	K	630V
C1373	TACBJ2J222KT	C	2200PF	K	630V
C1381	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1391	TACBU2E683KT	C	0.068UF	K	250V
C1401	ECUX1H510JCG	C	51PF	J	50V
C1402	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1403	ECJ2VF1H683Z	C	0.068UF	Z	50V
C1405	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1406	ECEA0JGE101	E	100UF		6.3V
C1408	ECUX1H220JCN	C	22PF	J	50V
C1409	ECJ2VF1C105Z	C	1UF	Z	16V
C1410	ECEA1EGE100	E	10UF		25V
C1412	ECEA1HGE3R3	E	3.3UF		50V
C1414	ECEA1HGE3R3	E	3.3UF		50V
	RESISTORS				
C1021	ERJ6GEY0R00	M	0 OHM		1/10W
C1121	ERJ6GEY0R00	M	0 OHM		1/10W
C1221	ERJ6GEY0R00	M	0 OHM		1/10W
C1353	ERJ6GEY0R00	M	0 OHM		1/10W
D1325	ERJ6GEY0R00	M	0 OHM		1/10W
D1501	ERJ6GEY0R00	M	0 OHM		1/10W
J601	ERJ6GEY0R00	M	0 OHM		1/10W
J602	ERJ6GEY0R00	M	0 OHM		1/10W
J603	ERJ6GEY0R00	M	0 OHM		1/10W
J604	ERJ6GEY0R00	M	0 OHM		1/10W
J605	ERJ6GEY0R00	M	0 OHM		1/10W
J606	ERJ6GEY0R00	M	0 OHM		1/10W
J607	ERJ6GEY0R00	M	0 OHM		1/10W
J608	ERJ6GEY0R00	M	0 OHM		1/10W
J609	ERJ6GEY0R00	M	0 OHM		1/10W
J610	ERJ6GEY0R00	M	0 OHM		1/10W
J611	ERJ6GEY0R00	M	0 OHM		1/10W
J612	ERJ6GEY0R00	M	0 OHM		1/10W
J613	ERJ6GEY0R00	M	0 OHM		1/10W
J614	ERJ6GEY0R00	M	0 OHM		1/10W
J615	ERJ6GEY0R00	M	0 OHM		1/10W

Ref.No.	Part No.	Description			
J616	ERJ6GEY0R00	M	0 OHM		1/10W
J617	ERJ6GEY0R00	M	0 OHM		1/10W
J701	ERJ8GCY0R00	M	0 OHM		1/8W
J702	ERJ8GCY0R00	M	0 OHM		1/8W
J703	ERJ8GCY0R00	M	0 OHM		1/8W
J704	ERJ8GCY0R00	M	0 OHM		1/8W
J705	ERJ8GCY0R00	M	0 OHM		1/8W
J706	ERJ8GCY0R00	M	0 OHM		1/8W
J708	ERJ8GCY0R00	M	0 OHM		1/8W
J709	ERJ8GCY0R00	M	0 OHM		1/8W
J710	ERJ8GCY0R00	M	0 OHM		1/8W
J712	ERJ8GCY0R00	M	0 OHM		1/8W
J714	ERJ8GCY0R00	M	0 OHM		1/8W
J715	ERJ8GCY0R00	M	0 OHM		1/8W
J716	ERJ8GCY0R00	M	0 OHM		1/8W
J717	ERJ8GCY0R00	M	0 OHM		1/8W
J719	ERJ8GCY0R00	M	0 OHM		1/8W
J720	ERJ8GCY0R00	M	0 OHM		1/8W
J721	ERJ8GCY0R00	M	0 OHM		1/8W
J724	ERJ8GCY0R00	M	0 OHM		1/8W
J725	ERJ8GCY0R00	M	0 OHM		1/8W
J726	ERJ8GCY0R00	M	0 OHM		1/8W
J732	ERJ8GCY0R00	M	0 OHM		1/8W
J733	ERJ8GCY0R00	M	0 OHM		1/8W
J736	ERJ8GCY0R00	M	0 OHM		1/8W
J737	ERJ8GCY0R00	M	0 OHM		1/8W
J739	ERJ8GCY0R00	M	0 OHM		1/8W
J1303	ERJ6GEY0R00	M	0 OHM		1/10W
J1304	ERJ6GEY0R00	M	0 OHM		1/10W
J1305	ERJ6GEY0R00	M	0 OHM		1/10W
L1331	ERDS2TC0	C	0 OHM		1/4W
L1355	ERDS2TC0	C	0 OHM		1/4W
R10	ERDS2TJ101	C	100 OHM	J	1/4W
R11	ERJ6ENF1002	M	10K OHM	F	1/10W
R12	ERJ6ENF4703	M	470K OHM	F	1/10W
R13	ERJ6ENF1052	M	10.5K OHM	F	1/10W
R14	ERJ6ENF3301	M	3.3K OHM	F	1/10W
R15	ERG2SJ183	M	18K OHM	J	2W
R16	ERJ6ENF3900	M	390 OHM	F	1/10W
R19	ERJ6ENF4702	M	47K OHM	F	1/10W
R20	ERJ6ENF4702	M	47K OHM	F	1/10W
R21	ERJ6GEYJ564	M	560K OHM	J	1/10W
R22	ERJ6GEY0R00	M	0 OHM		1/10W
R23	ERJ6GEYJ105	M	1M OHM	J	1/10W
R24	ERJ6ENF4703	M	470K OHM	F	1/10W
R25	ERJ6ENF1000	M	100 OHM	F	1/10W
R26	ERJ6GEYJ333	M	33K OHM	J	1/10W
R31	ERJ6GEYJ102	M	1K OHM	J	1/10W
R32	ERJ8GCYK2R7	M	2.7 OHM	K	1/8W
R33	ERG1SJ100	M	10 OHM	J	1W
R51	ERJ6GEYJ102	M	1K OHM	J	1/10W
R52	ERJ6GEYJ102	M	1K OHM	J	1/10W
R53	ERJ6GEYJ102	M	1K OHM	J	1/10W
R55	ERJ6GEYJ102	M	1K OHM	J	1/10W
R56	ERJ6GEYJ102	M	1K OHM	J	1/10W
R58	ERJ6GEYJ102	M	1K OHM	J	1/10W
R101	ERJ6GEYJ103	M	10K OHM	J	1/10W
R102	ERJ6GEYJ103	M	10K OHM	J	1/10W
R103	ERJ6GEYJ103	M	10K OHM	J	1/10W
R104	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R105	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R109	ERJ6GEYJ103	M	10K OHM	J	1/10W
R110	ERJ6GEYJ103	M	10K OHM	J	1/10W
R111	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
R112	ERJ6GEYJ122	M	1.2K OHM	J	1/10W
R115	ERJ6GEY0R00	M	0 OHM		1/10W
R120	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R121	ERJ6GEYJ822	M	8.2K OHM	J	1/10W
R123	ERJ6GEYJ122	M	1.2K OHM	J	1/10W
R124	ERJ6GEYJ392	M	3.9K OHM	J	1/10W
R125	ERJ6GEYJ335	M	3.3M OHM	J	1/10W
R127	ERJ6GEY0R00	M	0 OHM		1/10W
R131	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R132	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R133	ERJ6GEY0R00	M	0 OHM		1/10W
R134	ERJ6GEY0R00	M	0 OHM		1/10W
R135	ERJ6GEYJ471	M	470 OHM	J	1/10W
R136	ERJ6GEYJ101	M	100 OHM	J	1/10W
R137	ERJ6GEYJ101	M	100 OHM	J	1/10W
R140	ERJ6GEYJ103	M	10K OHM	J	1/10W
R141	ERJ6GEYJ103	M	10K OHM	J	1/10W
R142	ERJ6GEYJ103	M	10K OHM	J	1/10W
R145	ERJ6GEYJ103	M	10K OHM	J	1/10W
R146	ERJ6GEYJ103	M	10K OHM	J	1/10W
R149	ERJ6GEYJ183	M	18K OHM	J	1/10W
R150	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R151	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R152	ERJ12YJ471	M	470 OHM	J	1/2W
R153	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R154	ERJ6GEYJ102	M	1K OHM	J	1/10W
R155	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R156	ERJ6GEYJ103	M	10K OHM	J	1/10W
R162	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
R163	ERJ6GEYJ683	M	68K OHM	J	1/10W
R164	ERJ6GEYJ102	M	1K OHM	J	1/10W
R165	ERJ6GEY0R00	M	0 OHM		1/10W
R170	ERJ6ENF2202	M	22K OHM	F	1/10W
R171	ERJ6ENF5622	M	56.2K OHM	F	1/10W
R172	ERJ6ENF5622	M	56.2K OHM	F	1/10W
R173	ERJ6ENF6802	M	68K OHM	F	1/10W
R174	ERJ6GEYJ270	M	27 OHM	J	1/10W
R175	ERJ6GEYJ270	M	27 OHM	J	1/10W
R177	ERJ6GEY0R00	M	0 OHM		1/10W
R191	ERJ6GEYJ271	M	270 OHM	J	1/10W
R192	ERJ6GEYJ271	M	270 OHM	J	1/10W
R193	ERJ6GEYJ471	M	470 OHM	J	1/10W
R194	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R195	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R196	ERJ6GEYJ471	M	470 OHM	J	1/10W
R197	ERJ6GEYJ103	M	10K OHM	J	1/10W
R200	ERJ6GEYJ471	M	470 OHM	J	1/10W
R201	ERJ6GEYJ101	M	100 OHM	J	1/10W
R204	ERJ6GEYJ471	M	470 OHM	J	1/10W
R205	ERJ6GEYJ101	M	100 OHM	J	1/10W
R208	ERJ6GEYJ471	M	470 OHM	J	1/10W
R209	ERJ6GEYJ471	M	470 OHM	J	1/10W
R210	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R213	ERJ6GEY0R00	M	0 OHM		1/10W
R214	ERJ6GEY0R00	M	0 OHM		1/10W
R221	ERJ6GEY0R00	M	0 OHM		1/10W
R222	ERJ6GEYJ103	M	10K OHM	J	1/10W
R223	ERJ6GEYJ123	M	12K OHM	J	1/10W
R224	ERJ6GEYJ563	M	56K OHM	J	1/10W
R231	ERJ6GEYJ102	M	1K OHM	J	1/10W

Ref.No.	Part No.	Description				
R232	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R233	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R234	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R237	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R238	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R239	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R240	ERJ6GEYJ271	M	270	OHM	J	1/10W
R241	ERJ6GEYJ271	M	270	OHM	J	1/10W
R242	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R243	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R245	ERJ6GEYJ152	M	1.5K	OHM	J	1/10W
R247	ERJ6GEYJ104	M	100K	OHM	J	1/10W
R248	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R249	ERJ6GEYJ561	M	560	OHM	J	1/10W
R250	ERJ6GEYOR00	M	0	OHM		1/10W
R253	ERJ6GEYOR00	M	0	OHM		1/10W
R255	ERJ6GEYJ272	M	2.7K	OHM	J	1/10W
R256	ERJ6GEYJ121	M	120	OHM	J	1/10W
R257	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R258	ERJ6GEYJ561	M	560	OHM	J	1/10W
R260	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R261	ERJ6GEYJ683	M	68K	OHM	J	1/10W
R262	ERJ6GEYOR00	M	0	OHM		1/10W
R270	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R271	ERJ6GEYJ100	M	10	OHM	J	1/10W
R272	ERJ6GEYJ100	M	10	OHM	J	1/10W
R273	ERJ6GEYJ100	M	10	OHM	J	1/10W
R274	ERJ6GEYJ100	M	10	OHM	J	1/10W
R285	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R350	ERQ14AJ330	F	33	OHM	J	1/4W
R353	ERDS1FJ100	C	10	OHM	J	1/2W
R354	ERDS1FJ100	C	10	OHM	J	1/2W
R355	ERG2SJ270	M	27	OHM	J	2W
R371	ERDS1FJ364	C	360K	OHM	J	1/2W
R372	ERDS2TJ475	C	4.7M	OHM	J	1/4W
R373	ERJ8GCYJ683	M	68K	OHM	J	1/8W
R374	ERJ8ENF1781	M	1.78K	OHM	F	1/8W
R375	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R380	ERD25FJ102K	C	1K	OHM	J	1/4W
R381	ERJ6ENF2051	M	2.05K	OHM	F	1/10W
R382	ERJ6ENF6982	M	69.8K	OHM	F	1/10W
R384	ERJ6ENF2871	M	2.87K	OHM	F	1/10W
R385	ERJ8GCYJ121	M	120	OHM	J	1/8W
R386	ERG3FJ103	M	10K	OHM	J	3W
R387	ERJ8GCYJ302	M	3K	OHM	J	1/8W
R389	ERJ8GCYJ103	M	10K	OHM	J	1/8W
R390	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R391	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R392	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R407	EROS2CKF2432	M	24.3K	OHM	F	1/4W
R408	ERG2FJ301	M	300	OHM	J	2W
R440	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R441	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R446	ERJ6GEYOR00	M	0	OHM		1/10W
R480	ERJ6ENF1742	M	17.4K	OHM	F	1/10W
R481	ERJ6ENF2941	M	2.94K	OHM	F	1/10W
R482	ERDS1FJ1R2	C	1.2	OHM	J	1/2W
R483	ERDS1FJ1R2	C	1.2	OHM	J	1/2W
R484	EROS2CKF1202	M	12K	OHM	F	1/4W
R485	ERJ6GEYJ122	M	1.2K	OHM	J	1/10W
R486	ERJ6ENF1872	M	18.7K	OHM	F	1/10W
R487	ERDS2TJ1R0	C	1	OHM	J	1/4W
R488	ERX1SG1R2	M	1.2	OHM	G	1W
R489	ERX1SG1R2	M	1.2	OHM	G	1W
R491	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R492	ERDS2TJ102	C	1K	OHM	J	1/4W
R500	ERDS2TJ471	C	470	OHM	J	1/4W
R501	ERX2SJ3R3	M	3.3	OHM	J	2W
R502	ERG1SJ390	M	39	OHM	J	1W
R503	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R504	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R505	ERX2SJ3R3	M	3.3	OHM	J	2W
R506	ERD25FJ153K	C	15K	OHM	J	1/4W
R507	ERJ6GEYJ272	M	2.7K	OHM	J	1/10W
R508	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R509	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R527	ERJ6GEYOR00	M	0	OHM		1/10W
R530	ERQ12AJ270	F	27	OHM	J	1/2W
R531	ERJ12YJ5R6	M	5.6	OHM	J	1/2W
R532	ERJ12YJ5R6	M	5.6	OHM	J	1/2W
R533	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R542	ERJ6ENF7871	M	7.87K	OHM	F	1/10W
R543	ERJ6ENF9091	M	9.09K	OHM	F	1/10W
R544	ERJ6ENF1822	M	18.2K	OHM	F	1/10W
R545	ERG3FJ470	M	47	OHM	J	3W
R546	ERG3FJ470	M	47	OHM	J	3W
R547	ERJ6GEYJ220	M	22	OHM	J	1/10W
R548	ERJ6GEYJ332	M	3.3K	OHM	J	1/10W
R549	ERG2SJ561	M	560	OHM	J	2W
R550	ERQ12AJR47	F	0.47	OHM	J	1/2W
R551	ERX3FJX2R7D	M	2.7	OHM	J	3W
R552	ERX3FJX2R7D	M	2.7	OHM	J	3W
R553	ERX3FJX2R7D	M	2.7	OHM	J	3W
R554	ERX3FJX6R8D	M	6.8	OHM	J	3W
R560	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R561	ERJ6GEYJ100	M	10	OHM	J	1/10W
R563	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R564	ERJ6GEYJ100	M	10	OHM	J	1/10W
R566	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R567	ERJ6GEYJ100	M	10	OHM	J	1/10W
R570	ERJ8GCYJ473	M	47K	OHM	J	1/8W
R571	ERJ8GCYJ473	M	47K	OHM	J	1/8W
R572	ERJ8GCYJ473	M	47K	OHM	J	1/8W
R573	ERJ8GCYJ473	M	47K	OHM	J	1/8W
R574	ERDS1FJ220	C	22	OHM	J	1/2W
R575	ERQ12AJ101	F	100	OHM	J	1/2W
R595	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R596	ERDS2TJ562	C	5.6K	OHM	J	1/4W
R597	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R601	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R602	ERX1SJR33	M	0.33	OHM	J	1W
R603	ERX1SJR39	M	0.39	OHM	J	1W
R604	TARRS5B101J2	M	100	OHM	J	5W
R651	ERQ14AJ100	F	10	OHM	J	1/4W
R652	ERQ14AJR47HK	F	0.47	OHM	J	1/4W
R653	ERQ14AJR47HK	F	0.47	OHM	J	1/4W
R655	ERJ8ENF6041	M	6.04K	OHM	F	1/8W
R656	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R657	ERJ6ENF7322	M	73.2K	OHM	F	1/10W
R658	ERA6YEB123	M	12K	OHM	B	1/10W
R660	ERDS2TJ270	C	27	OHM	J	1/4W
R665	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R666	ERJ6GEYJ101	M	100	OHM	J	1/10W
R671	EROS2CKF1333	M	133K	OHM	F	1/4W

Ref.No.	Part No.	Description				
R672	EROS2CKF1433	M	143K	OHM	F	1/4W
R673	ERDS2TJ474	C	470K	OHM	J	1/4W
R680	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R681	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R682	ERJ6GEYJ471	M	470	OHM	J	1/10W
R683	ERJ6GEYJ220	M	22	OHM	J	1/10W
R684	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R685	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R687	ERJ8GCYJ333	M	33K	OHM	J	1/8W
R720	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R721	ERJ6GEYJ164	M	160K	OHM	J	1/10W
R722	ERJ6GEYJ182	M	1.8K	OHM	J	1/10W
R801	ERC12AGK105	S	1M	OHM	K	1/2W
R810	ERJ6ENF2671	M	2.67K	OHM	F	1/10W
R811	ERJ6ENF6191	M	6.19K	OHM	F	1/10W
R812	ERJ6GEYJ330	M	33	OHM	J	1/10W
R813	ERDS2TJ561	C	560	OHM	J	1/4W
R814	ERJ6GEYJ220	M	22	OHM	J	1/10W
R815	ERDS1FJ330	C	33	OHM	J	1/2W
R820	ERDS2TJ563	C	56K	OHM	J	1/4W
R821	ERF2EKR22	W	0.22	OHM	K	2W
R822	TARRS3B104J2	M	100K	OHM	J	3W
R823	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R824	ERJ6ENF1211	M	1.21K	OHM	F	1/10W
R825	ERJ6GEYJ682	M	6.8K	OHM	J	1/10W
R826	ERJ6ENF7152	M	71.5K	OHM	F	1/10W
R827	ERDS1FJ394	C	390K	OHM	J	1/2W
R828	ERDS1FJ394	C	390K	OHM	J	1/2W
R829	ERJ8GCYJ223	M	22K	OHM	J	1/8W
R830	ERJ6GEYJ273	M	27K	OHM	J	1/10W
R831	ERD25FJ560K	C	56	OHM	J	1/4W
R832	ERJ6GEYJ220	M	22	OHM	J	1/10W
R833	ERD25FJ223K	C	22K	OHM	J	1/4W
R834	ERJ8GCYJ222	M	2.2K	OHM	J	1/8W
R835	ERJ8GCYJ222	M	2.2K	OHM	J	1/8W
R836	ERG3FJ820	M	82	OHM	J	3W
R837	ERJ6ENF1400	M	140	OHM	F	1/10W
R838	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R839	ERJ6GEYJ332	M	3.3K	OHM	J	1/10W
R840	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R841	ERDS1FJ104	C	100K	OHM	J	1/2W
R842	ERJ6GEYJ180	M	18	OHM	J	1/10W
R844	ERDS2TJ102	C	1K	OHM	J	1/4W
R845	ERDS2TJ102	C	1K	OHM	J	1/4W
R847	ERJ6GEYK2R2	M	2.2	OHM	K	1/10W
R848	ERDS2TJ102	C	1K	OHM	J	1/4W
R849	ERDS2TJ122	C	1.2K	OHM	J	1/4W
R850	ERDS2TJ332	C	3.3K	OHM	J	1/4W
R851	ERDS2TJ103	C	10K	OHM	J	1/4W
R852	ERDS1FJ221	C	220	OHM	J	1/2W
R853	ERDS2TJ271	C	270	OHM	J	1/4W
R854	ERDS2TJ820	C	82	OHM	J	1/4W
R855	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R856	ERA6YEB104	M	100K	OHM	B	1/10W
R857	ERA6YEB302	M	3K	OHM	B	1/10W
R858	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R859	ERD25FJ391K	C	390	OHM	J	1/4W
R860	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R861	ERQ12AJR33HK	F	0.33	OHM	J	1/2W
R862	TAR14CJOR15V	M	0.15	OHM	J	1/2W
R863	ERQ12AJR47	F	0.47	OHM	J	1/2W
R864	ERQ12AJR12HK	F	0.12	OHM	J	1/2W
R865	ERQ12AJR12HK	F	0.12	OHM	J	1/2W
R866	ERQ12AJR12HK	F	0.12	OHM	J	1/2W
R867	ERJ6GEYJ104	M	100K	OHM	J	1/10W
R868	ERQ12AJR47	F	0.47	OHM	J	1/2W
R869	ERDS2TJ471	C	470	OHM	J	1/4W
R870	ERDS1FJ224	C	220K	OHM	J	1/2W
R871	ERJ6GEYJ183	M	18K	OHM	J	1/10W
R872	ERJ6ENF1822	M	18.2K	OHM	F	1/10W
R873	ERJ6ENF4222	M	42.2K	OHM	F	1/10W
R874	ERJ6GEYJ101	M	100	OHM	J	1/10W
R875	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R876	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R877	ERJ6GEYJ753	M	75K	OHM	J	1/10W
R878	ERG1SJ683	M	68K	OHM	J	1W
R879	ERJ8GCYJ332	M	3.3K	OHM	J	1/8W
R880	EROS2CKF1211	M	1.21K	OHM	F	1/4W
R881	ERJ6ENF1821	M	1.82K	OHM	F	1/10W
R882	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R883	ERDS1FJ221	C	220	OHM	J	1/2W
R884	ERX2SJ1R8	M	1.8	OHM	J	2W
R885	ERX3FJX4R7D	M	4.7	OHM	J	3W
R886	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R887	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R888	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R889	ERJ6GEYJ101	M	100	OHM	J	1/10W
R890	ERX2SJ1R0	M	1	OHM	J	2W
R891	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R892	ERJ6ENF2430	M	243	OHM	F	1/10W
R893	ERDS1FJ224	C	220K	OHM	J	1/2W
R894	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R895	ERJ6GEYJ101	M	100	OHM	J	1/10W
R898	ERJ6ENF2001	M	2K	OHM	F	1/10W
R899	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R902	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R903	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R905	ERJ6GEYJ331	M	330	OHM	J	1/10W
R906	ERJ6GEYJ331	M	330	OHM	J	1/10W
R909	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R913	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R914	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R916	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R961	ERJ6GEYOR00	M	0	OHM		1/10W
R975	ERJ6GEYJ101	M	100	OHM	J	1/10W
R978	ERJ6GEYJ101	M	100	OHM	J	1/10W
R979	ERJ6GEYJ101	M	100	OHM	J	1/10W
R988	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R992	ERJ6GEYOR00	M	0	OHM		1/10W
R993	ERJ6GEYOR00	M	0	OHM		1/10W
R1000	ERJ6GEYJ8R2	M	8.2	OHM	J	1/10W
R1001	TAJADQ75R0FV	M	75	OHM	F	1/3W
R1010	ERJ6GEYJ8R2	M	8.2	OHM	J	1/10W
R1011	TAJADQ75R0FV	M	75	OHM	F	1/3W
R1023	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1024	ERJ6ENF11R5	M	11.5	OHM	F	1/10W
R1027	TAJADQ75R0FV	M	75	OHM	F	1/3W
R1028	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1029	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1031	ERJ8GCYJ681	M	680	OHM	J	1/8W
R1032	ERJ8GCYJ220	M	22	OHM	J	1/8W
R1035	ERDS1FJ121	C	120	OHM	J	1/2W
R1041	ERJ6ENF5110	M	511	OHM	F	1/10W
R1042	ERJ6ENF1270	M	127	OHM	F	1/10W

	Ref.No.	Part No.	Description			
	R1043	ERJ6GEYJ183	M	18K OHM	J	1/10W
	R1045	ERJ6ENF2051	M	2.05K OHM	F	1/10W
	R1050	ERJ6GEYJ104	M	100K OHM	J	1/10W
	R1051	EROS2CKF7682	M	76.8K OHM	F	1/4W
	R1052	EROS2CKF2211	M	2.21K OHM	F	1/4W
	R1055	ERDS2TJ102	C	1K OHM	J	1/4W
	R1056	ERDS2TJ101	C	100 OHM	J	1/4W
	R1057	ERDS1FJ330	C	33 OHM	J	1/2W
	R1061	ERJ6ENF2372	M	23.7K OHM	F	1/10W
	R1065	ERJ6GEYJ221	M	220 OHM	J	1/10W
	R1066	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1067	ERDS2TJ224	C	220K OHM	J	1/4W
	R1100	ERJ6GEYJ8R2	M	8.2 OHM	J	1/10W
	R1101	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1110	ERJ6GEYJ8R2	M	8.2 OHM	J	1/10W
	R1111	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1123	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1124	ERJ6ENF11R5	M	11.5 OHM	F	1/10W
	R1127	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1128	ERJ6GEYJ330	M	33 OHM	J	1/10W
	R1129	ERJ6GEYJ330	M	33 OHM	J	1/10W
	R1131	ERJ8GCYJ471	M	470 OHM	J	1/8W
	R1132	ERJ8GCYJ220	M	22 OHM	J	1/8W
	R1135	ERDS1FJ121	C	120 OHM	J	1/2W
	R1141	ERJ6ENF5110	M	511 OHM	F	1/10W
	R1142	ERJ6ENF1100	M	110 OHM	F	1/10W
	R1143	ERJ6GEYJ183	M	18K OHM	J	1/10W
	R1145	ERJ6ENF2051	M	2.05K OHM	F	1/10W
	R1150	ERJ6GEYJ104	M	100K OHM	J	1/10W
	R1151	EROS2CKF7682	M	76.8K OHM	F	1/4W
	R1152	EROS2CKF2211	M	2.21K OHM	F	1/4W
	R1155	ERDS2TJ102	C	1K OHM	J	1/4W
	R1156	ERDS2TJ101	C	100 OHM	J	1/4W
	R1157	ERDS1FJ330	C	33 OHM	J	1/2W
	R1161	ERJ6ENF2372	M	23.7K OHM	F	1/10W
	R1165	ERJ6GEYJ221	M	220 OHM	J	1/10W
	R1166	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1167	ERDS2TJ224	C	220K OHM	J	1/4W
	R1200	ERJ6GEYJ8R2	M	8.2 OHM	J	1/10W
	R1201	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1210	ERJ6GEYJ8R2	M	8.2 OHM	J	1/10W
	R1211	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1223	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1224	ERJ6ENF11R5	M	11.5 OHM	F	1/10W
	R1227	TAJADQ75R0FV	M	75 OHM	F	1/3W
	R1228	ERJ6GEYJ330	M	33 OHM	J	1/10W
	R1229	ERJ6GEYJ330	M	33 OHM	J	1/10W
	R1231	ERJ8GCYJ681	M	680 OHM	J	1/8W
	R1232	ERJ8GCYJ220	M	22 OHM	J	1/8W
	R1235	ERDS1FJ121	C	120 OHM	J	1/2W
	R1241	ERJ6ENF5110	M	511 OHM	F	1/10W
	R1242	ERJ6ENF1270	M	127 OHM	F	1/10W
	R1243	ERJ6GEYJ183	M	18K OHM	J	1/10W
	R1245	ERJ6ENF2051	M	2.05K OHM	F	1/10W
	R1250	ERJ6GEYJ104	M	100K OHM	J	1/10W
	R1251	EROS2CKF7682	M	76.8K OHM	F	1/4W
	R1252	EROS2CKF2211	M	2.21K OHM	F	1/4W
	R1255	ERDS2TJ102	C	1K OHM	J	1/4W
	R1256	ERDS2TJ121	C	120 OHM	J	1/4W
	R1257	ERDS1FJ330	C	33 OHM	J	1/2W
	R1261	ERJ6ENF2372	M	23.7K OHM	F	1/10W
	R1265	ERJ6GEYJ221	M	220 OHM	J	1/10W

	Ref.No.	Part No.	Description			
	R1266	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1267	ERDS2TJ224	C	220K OHM	J	1/4W
	R1307	ERDS1FJ390	C	39 OHM	J	1/2W
	R1320	ERJ6GEYJ101	M	100 OHM	J	1/10W
	R1321	ERJ6GEYJ101	M	100 OHM	J	1/10W
	R1322	ERJ6GEYJ101	M	100 OHM	J	1/10W
	R1323	ERJ6GEYJ683	M	68K OHM	J	1/10W
	R1325	ERJ6ENF2372	M	23.7K OHM	F	1/10W
	R1326	ERJ6ENF4641	M	4.64K OHM	F	1/10W
	R1327	ERJ6GEYJ470	M	47 OHM	J	1/10W
	R1332	ERJ6GEY0R00	M	0 OHM		1/10W
	R1333	ERJ6ENF7501	M	7.5K OHM	F	1/10W
	R1334	ERJ6ENF1002	M	10K OHM	F	1/10W
	R1335	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
	R1336	ERJ6GEYJ223	M	22K OHM	J	1/10W
	R1338	ERJ6GEYJ123	M	12K OHM	J	1/10W
	R1339	ERJ6GEYJ183	M	18K OHM	J	1/10W
	R1340	ERJ6GEYJ331	M	330 OHM	J	1/10W
	R1341	ERDS1FJ822	C	8.2K OHM	J	1/2W
	R1345	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
	R1346	ERDS1FJ561	C	560 OHM	J	1/2W
	R1355	ERDS1FJ390	C	39 OHM	J	1/2W
	R1360	ERJ6GEYJ102	M	1K OHM	J	1/10W
	R1361	ERJ6GEYJ823	M	82K OHM	J	1/10W
	R1362	ERJ6GEYJ153	M	15K OHM	J	1/10W
	R1364	ERJ6ENF9092	M	90.9K OHM	F	1/10W
	R1365	ERDS2TJ185	C	1.8M OHM	J	1/4W
	R1366	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1368	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
	R1384	ERJ6GEYJ682	M	6.8K OHM	J	1/10W
	R1391	ERDS1FJ125	C	1.2M OHM	J	1/2W
	R1392	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
	R1393	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
	R1394	ERJ6GEYJ392	M	3.9K OHM	J	1/10W
	R1395	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1396	ERDS1FJ224	C	220K OHM	J	1/2W
	R1397	ERJ6GEYJ332	M	3.3K OHM	J	1/10W
	R1398	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
	R1399	ERJ6GEYJ682	M	6.8K OHM	J	1/10W
	R1401	ERJ6GEYJ330	M	33 OHM	J	1/10W
	R1402	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
	R1403	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
	R1404	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
	R1405	ERJ6GEYJ105	M	1M OHM	J	1/10W
	R1412	ERJ6GEYJ101	M	100 OHM	J	1/10W
	R1413	ERJ6GEYJ101	M	100 OHM	J	1/10W
	R1414	ERJ6GEYJ102	M	1K OHM	J	1/10W
	R1415	ERJ6GEYJ102	M	1K OHM	J	1/10W
	R1501	ERJ6GEYJ103	M	10K OHM	J	1/10W
	R1502	ERJ6GEYJ103	M	10K OHM	J	1/10W
	S291	ERD25TC0	C	0 OHM		1/4W
		OTHERS				
		TESA027	CRT PCB HOLDER			
		TES9148-4	SPRING(CRT EARTH)			
		THEC0159	SCREW(FOR CRT PCB HOLDER)			
		THE902N	D-SUB SCREW			
		THTF001	SCREW(FOR IC/TR/D)			
		TMKK027	DOUBLE FACE TAPE			
⚠		TSXX100	7P CONNECTOR ASSY			
		TUCC5374	SHIELD PLATE(CRT PCB)			
		TUCC5375	SHIELD CASE(CRT PCB)			

	Ref.No.	Part No.	Description
		TUWF034	BNC TERMINAL BRACKET
		TUWX039	AC INLET BRACKET
		XTV3+16J	SCREW
		XTV3+8J	SCREW
		XWG3F10	WASHER
	CL1	TUXX104	WIRE CLIP
⚠	CL4	TMM15412-1	CLAMPER
⚠	F801	XBA2C50TB15L	FUSE(5.0A)
	FG1	TJC85341	EARTH LUG
	FG2	TJC85341	EARTH LUG
	FG3	TJC85341	EARTH LUG
	FG4	TJC85341	EARTH LUG
	FG5	TJC85341	EARTH LUG
	FG6	TJC85341	EARTH LUG
	FG7	TJC85341	EARTH LUG
	FG9	TJC85341	EARTH LUG
	FG11	TJC85341	EARTH LUG
	FS801	TJC85502T	FUSE HOLDER
	FS802	TJC85502T	FUSE HOLDER
⚠	N11	EMCS0464M	4P CONNECTOR
⚠	N12-	TSXX109	2P/3P CONNECTOR ASSY
⚠	N100A	TJSF07820	20P CONNECTOR
⚠	N100B	TJSF07820	20P CONNECTOR
⚠	N101	TJS118590	2P CONNECTOR
⚠	N110A	TJSF05207	7P CONNECTOR
⚠	N110B	TJSF05207	7P CONNECTOR
⚠	N120	TJSF26615	15P CONNECTOR(D-SUB)
⚠	N150A	TJSF08010	10P CONNECTOR
⚠	N150B	TJSF07910	10P CONNECTOR(L-TYPE)
⚠	N231	TJSF10400	BNC TERMINAL
⚠	N232	TJSF10400	BNC TERMINAL
	N490	TJEA022	HEAT SINK TERMINAL
	N651	TJC85342T	LUG TERMINAL
	N652	TJCD003	TERMINAL
⚠	N801	TJS8A9361	AC SOCKET
⚠	N802	TJS8A8303	4P SOCKET
⚠	N803	TJS8A8303	4P SOCKET
⚠	N861	EMCS0264M	2P CONNECTOR
	N891	TEL302-9	TERMINAL
⚠	N903	EMCS0451ML	4P CONNECTOR(L-TYPE)
⚠	N1001	TJSF10400	BNC TERMINAL
⚠	N1004	TJSC00600	CRT SOCKET
	N1005	TJC85342T	LUG TERMINAL
	N1006	TJCD003	TERMINAL
	N1007	TJC85342T	LUG TERMINAL
⚠	N1015A	TJSF09554	54P CONNECTOR
⚠	N1101	TJSF10400	BNC TERMINAL
⚠	N1201	TJSF10400	BNC TERMINAL
	N510-1	TEL302-9	TERMINAL
	N510-2	TEL302-9	TERMINAL
	N510-3	TEL302-9	TERMINAL
	N510-4	TEL302-9	TERMINAL
	N520-1	TEL302-9	TERMINAL
	N520-2	TEL302-9	TERMINAL
	N901-1	TEL302-9	TERMINAL
	N901-2	TEL302-9	TERMINAL
⚠	PC821	ON3171	PHOTO COUPLER
⚠	PC822	ON3171	PHOTO COUPLER
⚠	PC823	HCNW4504	PHOTO COUPLER
	Q16	UN11004	IC PROTECTOR(0.4A)
	RL571	TSEH0015	RELAY
⚠	RL901	TSEH0010	RELAY
	S371	TAGA0005	SPARK GAP
	S671	TAGDSP141T	SPARK GAP
	S1051	TAGDSP141T	SPARK GAP
	S1151	TAGDSP141T	SPARK GAP
	S1251	TAGDSP141T	SPARK GAP
	S1351	TAGDSP141T	SPARK GAP
	S1355	TAGDSP201MF	SPARK GAP
	S1372	TAGA0006	SPARK GAP
	SG1001	TJC85341	EARTH LUG
	SG1002	TJC85341	EARTH LUG
⚠	SW801	ESB91274A	SWITCH(POWER)
	SW901	EVQPB005K	SWITCH
	SW902	EVQPB005K	SWITCH
	SW903	EVQPB005K	SWITCH
	SW904	EVQPB005K	SWITCH
	TH801	ERTB6SFL100P	THERMISTOR
⚠	TH901	TAP108M7R0	POSISTOR
	TP5	TEL302-9	TERMINAL
	X101	TAAA0005	CRYSTAL OSCILLATOR